

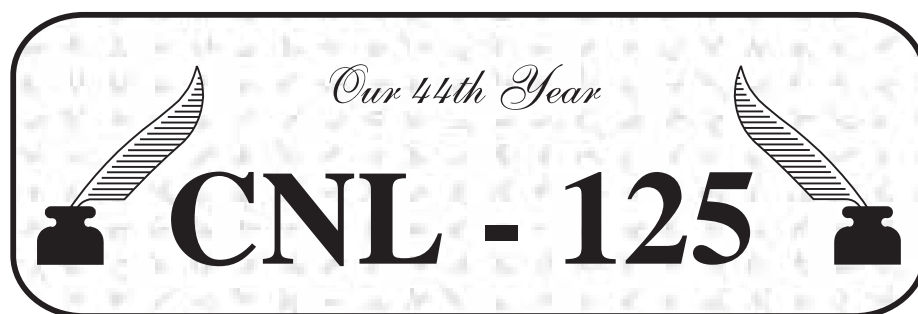
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Editorial

Pages 2597 - 2599

John M. Kleeberg

Biographical Sketch

Page 2600

Philip L. Mossman, M.D.

Error Coins of Pre-Federal America

Pages 2601 - 2637

Robert M. Martin

New 1785 Connecticut Copper Variety Discovered

Page 2638

Byron K. Weston

and

Gary A. Trudgen

*Central Device Punch Trial Piece of the
1781-dated Series of Counterfeit Halfpence*

Pages 2639 - 2642

Letter to the Editor

Page 2643 - 2645

Sequential page 2595

The Colonial Newsletter (CNL) is published three times a year by The American Numismatic Society (ANS), Broadway at 155th Street, New York, NY 10032. CNL is available at the rate of \$20 per year for ANS members and \$35 per year for non-members. For inquiries concerning CNL, please contact: Juliette Pelletier at the above postal address; e-mail pelletier@amnumsoc.org; telephone (212)234-3130 ext. 243 or FAX (212)283-2267.

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Although the technology available to the North American minters of the late 18th century was experiencing rapid growth, no phase of the minting process was yet immune from the common mishaps that could infiltrate any step of the minting process. As a result, mint errors, either single or multiple, were very common in Confederation coppers. The 1787 Connecticut copper shown above, Miller 33.32-Z¹³, is one such complex example of Murphy's Law. [Shown 1.5X actual size.] *Courtesy of Neil Rothschild.*

Die preparation error: [1] The I in AUCTORI is double cut (see Breen, *E.A.C Sale*, 15 Feb. 1975, lot #267). While not defined as errors, *per se*, the second C in CONNEC is punched very low while the 1 in 1787 is very high.

Die breaks: [2] (Obverse) A very long die break extends from the A in AUCTORI through the first cinquefoil running tangential to the milling and then upwards to meet the drapery at almost the half way point. Another break runs through the second cinquefoil into the lower dot of the colon and through the base of the wide, double cut I in AUCTORI. (Reverse) Tangentially from the rim above the second cinquefoil, a break runs into the fourth cinquefoil, while another extends from the rim above the fourth cinquefoil into the top of the seated figure's head.

Die failure and bulging: [3] Advanced die failure is noted for both dies with areas of bulging obliterating the front of the obverse figure's neck, comparable to lot #2587 in the *Taylor Sale*, 28 Mar. 1987. One wonders how much longer this die pair could survive before completely fracturing.

Planchet errors: [4] Planchet laminations are present in front of the reverse figure and over the bust. [5] Planchet roller marks remain over the obverse figure's hair. This area of the die was deeply engraved and not completely filled so that the original landscape of planchet was preserved. [6] There is small circular planchet clip.

Coining press errors: [7] Coin is shift double struck. [8] It also appears that the first strike was slightly off center.

Can you spot any others?



We are pleased to bring to you a jam-packed issue which touches on a variety of subjects. In addition to a fine feature paper, two technical notes, and a letter to the editor, I would like to call your attention to the following items of interest.

John M. Kleeberg

We are thrilled to welcome John Kleeberg to the *CNL* staff. He is joining us as an associate editor. John has a wealth of knowledge in the field of numismatics. Many of you probably remember John from his days at the ANS where he served as Curator of Modern Coins and Currency. After leaving the ANS, John attended the New York University School of Law and passed the New York State bar exam this past year. Please read the biographical sketch on John which is found on sequential page 2600.

CNL Conversion Project

In the previous issue, I mentioned that Jim Spilman, our Editor Emeritus, and I were working on a project to convert the back issues of *CNL* that were published under the auspices of CNLF (Colonial Newsletter Foundation) into soft copy format. The issue files were to be in Portable Document Format (PDF) and made available on CD-ROM. I'm pleased to report that the project has been completed. The CD-ROM contains issues 1 through 103, a searchable index, and a READ ME file. The price of the CD-ROM is \$65 postpaid in the United States. To order a copy, send a check or postal money order to: CNLF, P.O. Box 4411, Huntsville, AL 35815.

Currently, no foreign orders are being accepted.

New Jersey Coppers Book

Recently, the ANS announced the publication of a new book which may be of interest to our readers. The following is an excerpt from the press release.

The American Numismatic Society is pleased to announce the publication of *The Copper Coinage of the State of New Jersey: Annotated Manuscript of Damon G. Douglas*, Edited by Gary A. Trudgen. The book contains the original manuscript of researcher Damon G. Douglas on the early copper coinage of the state of New Jersey. The original manuscript, which was written several decades ago, has been annotated by some of the leading specialists in this field [David D. Gladfelter, Roger A. Moore, MD, FAAP, Gary A. Trudgen, Dennis P. Wierzba, Raymond J. Williams.] 130p, 3 illus., ISBN 0-89722-289-X. The book is available through the ANS' distributor, David Brown Book Company, Toll-free: (800) 791-9354, Tel: (860) 945-9329, Fax: (860) 945-9468, Email: david.brown.bk.co@snet.net. Price \$45; 30% discount to ANS members with valid ID.

For further information contact: Pamala Plummer-Wright at 212-234-3130 x 231, or by e-mail at Wright@numismatics.org.

CNLF eSIGs

On April 16, 2001, the Colonial Newsletter Foundation, Inc. established the first "electronic Special Interest Group" (eSIG) with the objective of conducting an iterative research and in-depth study activity dedicated to the "Counterfeit British Halfpence Believed to Have Circulated in America." It was an experiment in using digital Information Technology (IT) as a mechanism for numismatic research by sharing digital images of coins in members' collections and discussing these images among themselves. It was also the first installment of the new CNLF Phoenix Project.

Based upon the success of this initial eSIG, CNLF has decided to establish a number of additional eSIGs dedicated to each of the major categories of early American coinages and the printed currencies, as well. Included are two supporting eSIGs devoted to the ancillary functions of history and technology associated with the study of early American numismatics. An experienced and well recognized numismatist has agreed to champion each eSIG and to serve as eSIG moderator.

Each eSIG is a fully functional Internet website based on the Yahoo eGroup service and supported by CNLF.ORG which will, later, provide comprehensive FTP file storage capability for the new eSIGs.

The eSIGs, their moderators and the Internet URLs are as given below:

(1) ColNewsLetFndn (original CNLF eGroup & includes CNLF-1 and CNLF-2) (Closed membership eSIG) Byron Weston & Clem Schettino co-Moderators

(2) Blacksmith Tokens JCSpilman
<http://groups.yahoo.com/group/BlacksmithTokens>

(3) Connecticut Coppers Neil Rothschild
<http://groups.yahoo.com/group/ConnecticutCoppers>

(4) Nova Constellatio Tony Carlotto
<http://groups.yahoo.com/group/ConstellatioNova>

(5) Continental Dollars Mike Hodder
<http://groups.yahoo.com/group/ContinentalDollar>

(6) Fugio Cents Of 1787 David Palmer
<http://groups.yahoo.com/group/FugioCents>

(7) Higley Coppers Dan Freidus
<http://groups.yahoo.com/group/HigleyCoppers>

(8) Machin's (Atlee) Halfpence Gary Trudgen
<http://groups.yahoo.com/group/MachinHalfpence>

(9) Massachusetts Copper Mike Packard
<http://groups.yahoo.com/group/MassachusettsCopperCoinage>

(10) Massachusetts Silver Mike Hodder
<http://groups.yahoo.com/group/MassachusettsSilverCoinage>

(11) New Jersey Coppers (including St.Pats.). . . . Ray Williams
<http://groups.yahoo.com/group/NewJerseyCoppers>

(12) Vermont Coppers Tony Carlotto
<http://groups.yahoo.com/group/VermontCoppers>

(13) Virginia Halfpence of 1773. Roger Moore
<http://groups.yahoo.com/group/VirginiaHalfpenceOf1773>

(14) First U.S. Mint. JCSpilman
<http://groups.yahoo.com/group/TheFirstUSMint>

(15) Early American Numismatic History (CNLF-EANH) Mike Hodder
<http://groups.yahoo.com/group/CNLF-EANH>

(16) Early American Tokens & Minor Coinages (CNLF-EATMC) John Kleeberg
<http://groups.yahoo.com/group/CNLF-EATMC>

(17) Early American Printed Currency (CNLF-EAPC) Lou Jordan
<http://groups.yahoo.com/group/CNLF-EAPC>

(18) Science & Technology (CNLF-SCITECH) . . . Mike Hodder
<http://groups.yahoo.com/group/CNLF-SCITECH>

If you would like to join one or more of these CNLF/eSIGs just click on the appropriate URL and when you reach the eSIG, read the introductory material and click on "Join this Group."

ANS Relocation

Keep the following date and time in mind. Friday, June 18, at 6:00 pm will be the official opening of the new ANS building at 96 Fulton/140 William St. For further information, please contact Joanne Isaac at (212) 234-3130 ext.217 or e-mail at Isaac@numismatics.org.

In this Issue

Our feature paper is a very interesting and useful study of the various errors found on early American coins produced before the Federal Mint began operations in 1792. The basis of this paper was presented by Dr. Philip Mossman at the ANS Coinage of the Americas Conference (COAC) in Baltimore, MD on March 17, 2001. A decision was made not to publish a conference proceedings for this COAC, thus freeing up Phil's paper for publication elsewhere. Phil has expanded the paper for publication in *CNL*. I think you will agree when I claim that it is a "must have" reference for all serious students of the early American coinages.

Minting equipment from the various American pre-Federal coinage operations has not survived, plus there is no known written documentation from this era that adequately describes the technologies employed to mint these coins. The best evidence we have concerning the minting processes are the coins themselves. By studying error coins from each step of the minting process the technology employed to mint the coin can be extrapolated. In this paper, Phil follows the contemporaneous minting process from start to finish, illustrating and explaining errors that occurred in the process.

In our first technical note, Robert Martin reports the discovery of a new Connecticut obverse die. The newly discovered die is paired with an already known 1785 reverse die labeled A³. Tentatively, the new obverse die has been classified as Miller 6.6, thus creating a new 1785 variety, M. 6.6-A³. Robert presents diagnostic and metrological data on the discovery coin.

An extremely interesting and important central device trial piece is the subject of our next technical note. This artifact from the period when British halfpence were being extensively counterfeited has been the subject of much discussion and examination over the past several months. The central devices that are impressed into the trial piece are the same that are found on the 1781-dated series of counterfeit halfpence. The authors, Byron K. Weston and yours truly, conclude that the trial piece is the result of impressing central device matrix punches into a copper flan.

We received a thought provoking and informative letter from patron Thomas Kays in response to our previous issue which contained Dr. Philip Mossman's "Money of the 14th Colony: Nova Scotia (1711-1783)." We thought our readers would find Tom's comments and Phil's replies interesting. Thus, the letter, along with Phil's inserted replies, is reproduced starting on sequential page 2643 under the title Letter to the Editor. Tom, who is an expert metal detectionist, wrote an in-depth paper, three years ago, concerning the

recovery of Spanish pistareens from within the Tobacco Colonies. This paper appeared in CNL-116 and was titled "When Cross Pistareens Cut Their Way Through the Tobacco Colonies." If, per chance, you haven't read this paper, I highly recommend it.

Gary Trudgen
gtrudgen@aol.com

Biographical Sketch

John M. Kleeberg

John M. Kleeberg was born in New York City and attended that city's public schools, including Stuyvesant High School. He obtained his B.A. at Yale, where he double majored in Classics (Latin) and History. He next pursued graduate studies at Oxford, where he obtained the degree of D.Phil. for a dissertation in Modern History entitled, "The Disconto-Gesellschaft and German Industrialization: A Critical Examination of the Career of a German Universal Bank, 1851-1914." In 1990 he became Assistant Curator of Modern Coins and Currency at the American Numismatic Society; he was promoted twice, to Associate in 1991 and to full Curator in 1994. He was respectively Secretary-Treasurer, Vice-President and President of the New York Numismatic Club, 1992-97. From 1991 onwards he published and edited many numismatic works, notably the volumes for the Coinage of the Americas Conferences; when editing these volumes he worked extremely closely with Leslie A. Elam, the Executive Director of the American Numismatic Society.

His works on coinage of the colonial and Confederation periods include his attribution of the New Yorke in America token to Francis Lovelace; the identification of the plate in Longworth's *New York Directory* (and hence the Park Theatre, not, as some thought, the John Street Theatre) as the model for the Theatre at New York token; and an account of the wreck of the *Faithful Steward*, a shipment importing many counterfeit halfpence. He published a sylloge of an exhibit of Massachusetts silver organized by Anthony Terranova and Joseph Lasser at the American Numismatic Society, which displayed specimens then in the collections of Andrew Hain, Joseph Lasser, Eric P. Newman, Norman Stack, Anthony Terranova, Alan Weinberg, as well as the Society itself. He has also done much work on coinage that began circulating in the colonial periods and continued to circulate through the early Republic, such the pistareen and counterfeit two *reales*. He did a die study of counterfeit two *reales* and counterfeit flowing hair half dollars. The die study of counterfeit two *reales* would have been completed much sooner if he had not chosen to collaborate with Mike Ringo; every time that Kleeberg had his die charts arranged neatly and was ready to publish, Ringo would discover several new interesting varieties and Kleeberg had to recommence the die study from the beginning.

The litigation that followed upon the discovery of the large cent thefts committed by Dr. William H. Sheldon engendered an interest in law, and he left the American Numismatic Society in 2000 to enter the New York University School of Law. He obtained his J.D. from the NYU School of Law in 2003, and passed the New York State bar exam that year. While in law school he wrote a student note about the development of German tort law and Bismarck's introduction of accident insurance, the first workers' compensation scheme in the world. He continues to research and write in numismatics, with his chief interests currently including American coin finds and false Mexican and Western American gold and silver bars.

Error Coins of Pre-Federal America¹

by

Philip L. Mossman, M.D.: Bangor, ME

Contents

A. Introduction	page 2602
1. Oddities vs. errors	page 2602
a. Definitions	
b. <i>Pièces de caprice</i>	
c. Overstruck coins	
B. Die preparation errors	page 2604
1. Die engraving	page 2604
2. Hub design/manufacturing errors	page 2605
3. Central hubbing errors	page 2606
4. Die engraving errors	page 2607
5. Mispunched legends	page 2608
a. Corrected and uncorrected	
b. Blundered legends	
6. Die breaks	page 2611
a. Rim cuds and die chips	
7. Die failure and die bulging	page 2613
C. Planchet errors	page 2614
1. Defective planchets	page 2614
2. Laminations and striations	page 2616
3. Planchet rolling errors	page 2617
4. Planchet roller marks; other metal flow phenomena	page 2618
5. Planchet cutting errors	page 2621
a. Cutter marks	
b. Mint-made planchet clips	
D. Errors from the coining press	page 2626
1. Press loading errors; die rotations	page 2629
2. Impression from foreign material	page 2629
3. Clash marks	page 2629
4. Uniface coins	page 2630
5. Brockages	page 2630
6. Off-center (off-set or off-strike) coins	page 2631
7. Double-strike or shift double strike coins	page 2632
8. Rotational double strike	page 2633
9. Flipped-over multiple struck coins	page 2633
10. Multiple Offset (Off-centered) Strikes (MOS)	page 2633
a. Type A – involves a single coin only	
b. Type B – struck coin and blank planchet involved	
c. Type C – two struck coins involved	
E. Summary	page 2636
F. Acknowledgments	page 2637

¹ A preliminary version of this paper was presented on March 17, 2001, at *Coinage of the Americas Conference* held in conjunction with The Baltimore Coin & Currency Convention at the Baltimore Convention Center.

A. Introduction

1. Oddities vs. errors

Modern day students of pre-Federal coinages are at a distinct disadvantage in investigating early American minting technologies because none of the original equipment used 200 plus years ago has survived for our examination today. Written documentation is essentially non-existent and the only available eyewitnesses able to testify about these early minting procedures are the coins themselves! They have become our primary sources of information and even though these coins tell us a great deal, unfortunately they do not tell everything and thus we need to extrapolate from the few known facts. Because minting practices had not yet evolved to a dependably reproducible level by the mid-1780s and since these early coins were struck without collars, error coins abound within the early American series. Careful assessment of these errors has been immensely helpful in our study of the normal mint procedures since they show us where, and sometimes how, the minting process departed from its usual, predictable routine and created these flaws.² Errors should not be considered freaks in a numismatic sideshow, but rather these deviations from the norm are surviving artifacts of the past that serve to instruct us in early minting methods.

Now when I say “colonial,” you will appreciate that I mean coins – either domestic or imported – minted in the pre-Federal era that circulated as current money in this country. In addition to the abundant Spanish and other foreign specie coins, this context would generally include Massachusetts silver, counterfeit and regal English and Irish halfpence, and state coppers of the Confederation period (1783-89). Rather than to discuss all known errors within this large census of early North American coinages, this paper concentrates on domestic post-Revolutionary War issues with some occasional reference to the plentiful English and Irish coppers of the period – both regal and counterfeit.³

a. Definitions

The dictionary defines the word “error” as “an act involving an unintentional deviation from truth or accuracy.” For our purposes, Richard Doty is more specific as he describes a numismatic error as “any numismatic item with evidence of a mistake made during its manufacture.”⁴ In applying these definitions to colonial era coins, we need to consider three additional aspects to these “unintentional deviations” leading to “mistakes.” From the first perspective, one observes whether the “mistake” involved *all* the coins struck from a particular die. This scenario occurred typically when a diesinker misspelled a word by inadvertently punching a wrong letter into the legend. Despite the recognized inaccuracy – and probably for reasons of economy⁵ – the die was placed in service regardless of the evident error on all coins struck from the faulty die. There are also examples of “corrected errors” where the errant craftsman deftly redeemed himself by overpunching his *faux pas* with the proper tool. These unintentional flaws, whether they were corrected or not, are still errors.

The second genre of “unintentional deviations” includes those many instances where a normal die became injured in the course of its use – such as from a die break or accidental clashing – so that only those coins minted subsequent to a definable point in time carried indications of a mistake.

2 See James C. Spilman, “An Overview of Early American Coining Technology,” *The Colonial Newsletter*, [henceforth, CNL] (in four parts) pp. 765-66, 780-98, 799-811, 812-30.

3 There will be no analysis of errors among cast counterfeits, only struck examples.

4 Richard G. Doty, *The Macmillan Encyclopedic Dictionary of Numismatics* (New York, 1982), pp. 125-28. See also pp. 37-38, 55-56, 81, 101, 190-91, and 236-37.

5 Die sinking was probably the greatest single recurring expense at the mint, hence this exercise of economy.

Now one might consider that such a die injury is just the natural consequence of “normal wear and tear” rather than an “error,” but, since the flaw was unforeseen, this circumstance meets the above definition of an error because no one planned on it.

Lastly, an error may affect individual coins – or at least only one or two coins at a time rather than the entire generation. This situation is encountered in flan preparation when clips occur, or during the striking process when, much to the pressman’s consternation, his planchet suddenly disappeared from view as it adhered to the upper die and he inadvertently stamped a brockage.

In studying coins of this period, when minting techniques were being perfected, we are faced with the following rhetorical question. As I alluded in an above paragraph, how many of these actual “errors,” particularly those involving a large percentage of a particular emission – such as die breaks or clash marks – were the results of potentially preventable circumstances, versus how many were just the unplanned consequences inherent to the immaturity of our domestic minting industry? In those formative years of the second half of the 18th century, all phases of American industry were in their infancy as the refinements of the Industrial Revolution were gradually being assimilated in this hemisphere. There is no doubt that most minting practices in Europe were far advanced over those in America and a serious game of catch-up was being played on this side of the Atlantic. As a consequence of this lag-time, English coppers of the period were generally superior to our post-Revolutionary state issues and many of the common mint errors encountered in our coinages resulted from the lack of seasoned experience within this developing industry.

The format of this paper will follow the contemporaneous minting process from start to finish and, as the different phases of the operation are systematically described, it will be indicated at which levels of the operation how, and perhaps why, a particular error occurred. Because of the imprecision within the early mints, it will become evident that many coins were the victims of multiple errors as illustrated on page 2596. It is to be emphasized that while this paper describes errors in general terms, it does not pretend to be a catalogue of all the known error coins from this period.

b. *Pièces de caprice*



Figure 1: A quadruple struck 1786 Connecticut Miller 5.2-I. This numismatic miscarriage had to have been a purposeful contrivance by mint workers, thus creating an oddity, rather than an error or an unintentional aberration of a usual minting procedure. [Shown 1.5X actual size.] *Courtesy of the Colonial Newsletter Foundation.*

The discussion thus far has centered on errors resulting from a score of possible events ranging from human mistakes during die preparation, to the physical failure of die materials, and to the mechanical or human malfunction of associated equipment. Besides these obvious accidents, there are some very unusual coins with blatant “errors” which undoubtedly were quite purposeful. By their very nature, these *pièces de caprice* – such as a perfectly centered quadruple strike – cannot be considered error coins *per se*, but rather deliberate fabrications struck

for the entertainment of the mint workers which consequently became objects for the enjoyment of future generations of numismatists.

c. Overstruck coins

It was not unusual for coppers of this period, already minted with their own labels, to be fed again into other presses and overstruck with the new emblems of a different jurisdiction. Thus certain New Jersey dies were commonly struck over Connecticut coppers. Since this practice was quite purposeful, these are not errors but interesting oddities. Although the host coins were usually annealed and softened sufficiently to accept the new impressions, residual devices on the old coins may remain visible. When fragments of original legends are still evident around the periphery and blend with the new, this tangle of letters should not be confused with striking from clashed dies which present themselves in mirror image.

B. Die preparation errors

1. Die engraving

Preparation of the dies was an early step in manufacturing coins; this procedure will be briefly reviewed. Using the most advanced method of the period, the principal elements of the central design were engraved by hand into the softened end surface of an annealed steel cylinder. The residual steel was then cut away, such that the cut design stood in relief as a positive image; next this engraved cylinder, or hub, was hardened. The resultant tool, the master device puncheon (also called the large device hub), was very valuable and to insure the engraver's hard work was not lost in case of subsequent damage, a copy was usually made. To do so, the master device puncheon was impressed into another softened steel cylinder using a screw press forming an intaglio impression of the engraving called the master device matrix or common matrix. The common matrix could be used to raise many duplicate large device working puncheons thus protecting the integrity of the original tool by limiting its exposure to trauma. Using the common matrix, the engraver retained the capacity to propagate identical designs for use on many future dies – a situation exemplified by the exact replication over many years of the regal busts on Tower Mint coppers.⁶ (Multiple letter punches, indistinguishable from each other, could also be raised in the same manner from a common matrix.⁷) With the aid of a working device puncheon (made from the common matrix), the central images were next sunk into the softened end of another steel die blank to make a working or embossing die. As before, these large central figures were transferred into the new hub with a powerful screw press. The fine details were added or strengthened and legends were sunk into the embossing die by individual hand punches. Finally the finished product was hardened and ready to be secured in the press to strike the coins. Most of Buell's later Connecticut dies were completed by this technique.⁸ For his earlier 1786 coins, it appears that Abel Buell used a very advanced technology when he sank many of his working dies from a common complex hub into which all the necessary elements, central devices and complete legends had been punched.⁹

There were shortcuts from this classic pattern of die making. In a less complicated method, the common matrix step was eliminated thus waiving any capacity to raise a duplicate working device puncheon. The large designs were directly sunk into the embossing dies using the one and only

6 C.E. Challis, ed., *A New History of the Royal Mint* (Cambridge, 1992), pp. 429-30.

7 Denis R. Cooper, *The Art and Craft of Coinmaking: A History on Minting Technology* (London 1988), p. 80, fig. 84.

8. Walter Breen, *Dies and Coinages* (New York 1962, repr. Chicago 1975), pp. 9-12.

9 James C. Spilman, "Abel Buell – Our American Genius," *CNL*, pp. 424-31; Spilman, "Overview," pp. 816-17.

hand-engraved master device puncheon. Should calamity befall the master device puncheon, the engraver would have to start from scratch.

A third less sophisticated method was to engrave the central figures directly into the final steel embossing die blank making an intaglio or mirror image design. Then the desired legends and any finishing details were completed with hand punches. Many of the dies for English and Irish counterfeit coppers, especially the George II issues, were engraved in this manner. (See Figures 5 and 6.)

In summary, die preparation is seen to be a multi-step process where errors could have crept in at any level.

2. Hub design/manufacturing errors

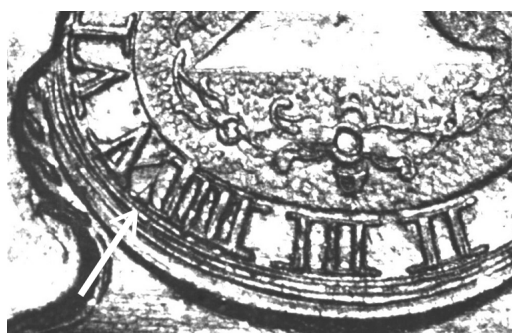


Figure 2: A close-up of a lead die trial of the original Fugio master puncheon showing a partial extraneous fifth digit (arrow) to the left of Roman numeral IIII. *Courtesy of The Colonial Newsletter Foundation.*



Figure 3: This Fugio copper, Newman 11-B, shows remnants of extraneous fifth digit on Roman numeral IIII which is now covered with a decorative element – an olive – that was added between all other numbers as a half-hour mark. This correction was made on all Fine Ray Fugio working dies (but not on the Club Ray varieties). We will refer to this figure again in the discussion of clash marks which are so evident on both the obverse and reverse of this variety. [Shown 1.5X actual size.] *Courtesy of The American Numismatic Society.*

At least one series of early American coin exhibits an error resulting from a defective master device punch from which all working dies were subsequently raised. These are the 1787 Fugio cents, where, during initial hub preparation, the engraver, presumably that mechanical genius Abel Buell, erroneously engraved a partial, extraneous fifth bar to the left side of the Roman numeral IIII on the face of the obverse sundial. Since it was intended to sink all subsequent Fugio dies from this common master, the artisan could have discarded the entire hub and started over – but this didn't happen. Why sacrifice an otherwise perfect hub on which so much time and effort had expended for the sake of one little mistake? There is no way of knowing how many previous attempts might have been ruined prior to this catastrophe! So to salvage the work, the engraver corrected the error in a rather clever way: since the partial numeral had been engraved into the hub and could not be erased, he simply transferred the flawed design into every Fugio working die sunk from that hub. Then the actual correction was accomplished

on each individual die by obscuring the bungle with an ornament punched over the involved area. To obfuscate the mishap even more, the same ornament – an olive – was applied between every other numeral on the sundial to give the appearance of a planned decorative design as a half-hour mark. Thus we have a genetic defect on the master hub that was transferred to every working die sunk from that hub. Then, on each individual working die, the tracks of the error were further covered by hand-punching an ornament into the entire plate design.¹⁰

3. Central hubbing errors (shifted hub)

As described above, the raised designs on a common master puncheon were sunk into the prepared steel blank of each individual embossing die by means of a powerful press. Any extraneous movement between the master puncheon and new die during the transfer process, however so slight, could result in the doubling of the central design in the new die. C. Wilson Peck observed that “it is not always realized that in making dies it is usually necessary to strike a succession of blows in order to obtain a satisfactory impression [of the hub], and consequently dies are almost as liable to be double-struck as the coins struck from them.” Such a “shifted hub” was identified on a 1696 William III halfpenny, BMC #644, where a third hair ribbon and other doubling exist due to a “double struck die.” Peck further cautioned that some supposed double struck coins may actually have been the products of unrecognized double struck dies.¹¹

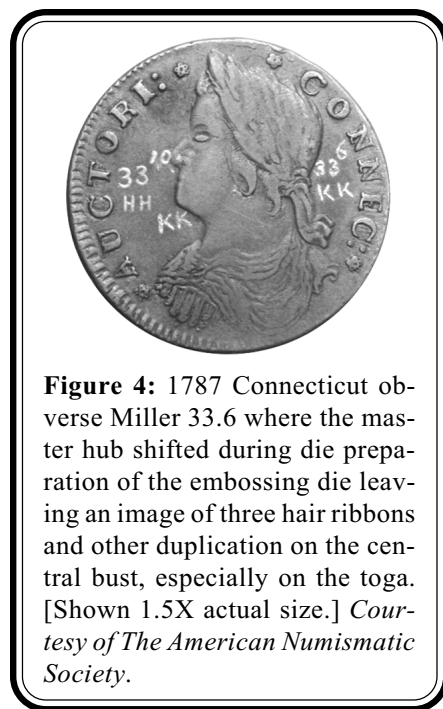


Figure 4: 1787 Connecticut obverse Miller 33.6 where the master hub shifted during die preparation of the embossing die leaving an image of three hair ribbons and other duplication on the central bust, especially on the toga. [Shown 1.5X actual size.] Courtesy of *The American Numismatic Society*.

In the Connecticut series, a notable error in this central design hubbing process is seen in 1787 Connecticut obverse, Miller 33.6, where the ends of the hair bows and the toga folds of the figure are partially duplicated, indicating that, due to several repeated blows, some degree of movement occurred as the central figure puncheon was being sunk into the new die. The resultant “triple hair bow ends” error (Figure 4) was minor and certainly an inadequate reason for the thrifty Yankee mint master, Abel Buell, to discard an otherwise serviceable die. A similar situation is also seen in the very rare 1787 Miller 29.2 obverse where the double-entered, or “shifted” hub, created a “four ribbon ends” variety, a second obverse error with this characteristic.¹²

Within the Fugio series, the LL reverse was struck from a double hubbed die. The characteristics of this rare die are illustrated in *The Colonial Newsletter* for January 1976.¹³

10 James C. Spilman, “Comments on the Fugio Cents of 1787,” *CNL*, pp. 26-27; Spilman, “Overview,” *CNL*, p. 822; personal communication, 26 Jan 2004.

11 C. Wilson Peck, *English Copper, Tin and Bronze Coins in the British Museum 1558-1958* (London, 1970) 2nd ed, p. 169.

12 For examples of this classic rarity, see *Early American Coppers Sale*, Feb 17, 1975, lot #111; *The Herbert M. Oechsner Sale*, Sept. 8, 1988 (Stack’s), lot# 1095; *The Edward Hessberg Sale*, June 19, 1991 (Stack’s), lot #1413; and *The Frederick B. Taylor Sale*, Mar. 26, 1978 (Bowers and Merena), lot #2468.

13 TN-55, p. 537.

4. Die engraving errors



Figure 5: Atkins 230, an English counterfeit halfpenny, demonstrating colossal engraving errors. The central figures were reversed and the letter punches incorrectly oriented. [Shown 1.5X actual size.] *Courtesy of Neil Rothschild.*



Figure 6: Atkins 230, shown in mirror image, gives the same perspective as if one were looking at the working die pair. This is what the engraver saw as he worked but he failed to understand that the finished coin would be a reverse image. [Shown 1.5X actual size.] *Courtesy of Neil Rothschild.*

A 1771 counterfeit English halfpenny, Atkins 230, was struck from dies whose central figures were engraved directly into the working die. It is probably the most flagrant error coin from this period (Figure 5)!¹⁴ Although this is not a domestic coin, it serves as a departure point from which to demonstrate the die preparation sequence. A coin, which is a positive image, is struck from dies that are the negative or mirror image of the coin. As described, the designs are either engraved directly onto the embossing die in mirror image, or transferred there, by device hubs and letter punches, that, like the coin, are positive images. The central figures in Atkins 230 were neatly engraved directly into the dies – but backwards! One can see that the diesinker had the proper punches, i.e. positive image coin punches (possibly not the A), but used some of his tools upside-down. Of the symmetrical punches, O, I, X, V, T, and A, both the T and A were correctly placed; the V was initially inverted and then rotated 180° into a correct position; as for the O, I, and X, it didn't matter. The asymmetrical punches, R, G, E, S, B, and N all needed to be rotated 180° except for the R that was properly

punched. The diesinker had the adequate tools but did not understand the concept of mirror imaging for the die, or was perceptually challenged! He could have been a silversmith, accustomed to engraving into silver plate, but unfamiliar with the requirements of coinage dies. It is unlikely that anyone would have expended all the hours of handwork on these dies had it been merely a prank. Figure 5 shows the coin as it actually is while Figure 6 is the same image reversed as though one were looking down on the embossing dies just as they were punched. The comparison of both figures demonstrates the evolutionary pattern of the mistakes.

Another famous accident is assumed to have occurred during die preparation within the Nova Constellatio series attributed to Birmingham, England. On the 1783 Crosby 1-A, a crescent-

¹⁴ Also seen as Anton #4 in William T. Anton, Jr., *Forgotten Coins of the North American Colonies*; plated in Peck, *op. cit.*, as 50-zz on Plate 50.



Figure 7: Obverse, 1783 Crosby 1-A Nova, showing the result of an extraneous gang punch having been accidentally impressed under the STEL and ATIO. [Shown 1.5X actual size.] *Courtesy of The American Numismatic Society*

shaped gang punch of edge denticles was partially sunk into the obverse die, where it made a permanent impression. This mishap was doubtless an accident but nonetheless, the die was otherwise too good to discard because of a minor cosmetic blemish.

5. Mispunched legends

a. Corrected and uncorrected

Prior to our state and Federal mints, English and Irish coppers, both regal and counterfeit, were the primary small change medium circulating widely in British North America. Even those legitimate coppers, some from the Tower Mint, had their share of errors; the king's name was misspelled on certain issues of William III, George II and George III!¹⁵ Errors were especially commonplace on counterfeit halfpence but any such mistakes would have had no consequence on their circulation among a largely illiterate populace.

One die within the Nova Constellatio copper series, just discussed, had the misspelled word, CONSTELATIO, in its reverse legend. This error was insufficient to cause the die to be rejected, but on the contrary, it was married with two different obverses, again indicative that the public was not sufficiently literate or knowledgeable to show particular concern.¹⁶ The legend, IMMUNE COLUMBIA, was punched in a rare 1785 pattern; this was a significant Latin grammatical error where the incorrect neuter form of the adjective was used rather than the appropriate feminine ending, IMMUNIS.¹⁷



Figure 8: (Left) 1787 Connecticut Miller Q reverse, with the corrected date, 1787, punched over 1788. (Right) 1787 Connecticut Miller R reverse, where 1788 is corrected to 1787. [Shown 1.5X actual size.] *Courtesy of The American Numismatic Society.*

Except for some completely hubbed dies of Abel Buell, most state coinage dies were completed in stages whereby the central figures were first sunk into the die steel with a common hub, the details then strengthened by hand engraving, and lastly the legends were added individually with hand punches, with the aid of a lettering guide. This sequence provided an opportunity for spell-

¹⁵ GVLIELMVS (William) was rendered GVLIEMVS, GVLILMVS, GVLIELMV, GVLIELMS, and GVLILEMVS; GEORGIVS was erroneously punched as GEOGIVS and GEORIVS (Peck, *op. cit.*, pp. 170-72, 209, 232).

¹⁶ This spelling error in the Nova Constellatio series is found in die varieties 1783 3-C, 1785 1-B.

¹⁷ Private communication, Louis E. Jordan, 2 Feb. 2001.

ing errors to occur. In the Connecticut series, there are several errors which the die sinker was able to correct in a timely manner before the dies were finished. These include the two Connecticut overdates, 1787 over 1877, and 1787 over 1788, where the errors were corrected with the appropriate number punch.

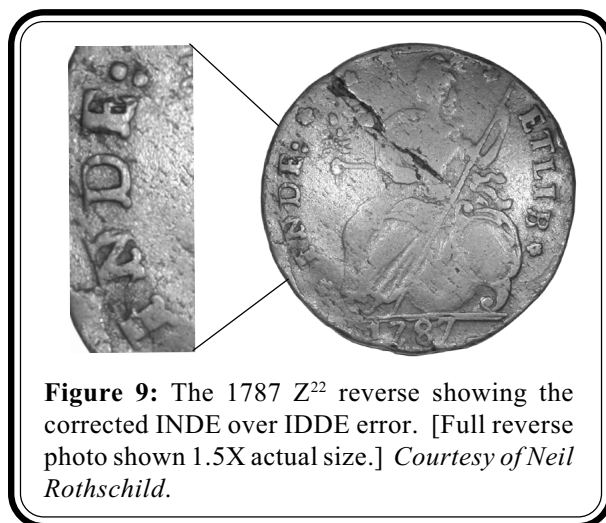


Figure 9: The 1787 Z²² reverse showing the corrected INDE over IDDE error. [Full reverse photo shown 1.5X actual size.] *Courtesy of Neil Rothschild.*

There are other less well known examples of corrected errors within the Connecticut series. Miller describes the final B in LIB punched over a misplaced cinquefoil in both the 1787 r¹ and r⁵ reverses.¹⁸ Similarly in the 1787 Z²² reverse, the legend appeared to start as IDDE until the appropriate N was struck over the first D correcting it to INDE. Miller observed this flaw in both Z²¹ and Z²² which he attributed to an N punch altered from an O punch.¹⁹ There are also numerous examples of double cut letters but perhaps these were more likely to have been instances of faulty technique rather than actual errors.

Although this review does not intend to be a complete tabulation of all punch errors and corrected errors seen in the coins of this period, one can further mention that within the Fugio series there are two more recognized errors which render them desirable as type coins. There is the uncorrected FUCIO where it was thought that the C punch was not completed into G,²⁰ and obverse Newman 10, where the number 1 in the date (1787) was first punched horizontally and later corrected to the proper vertical position.

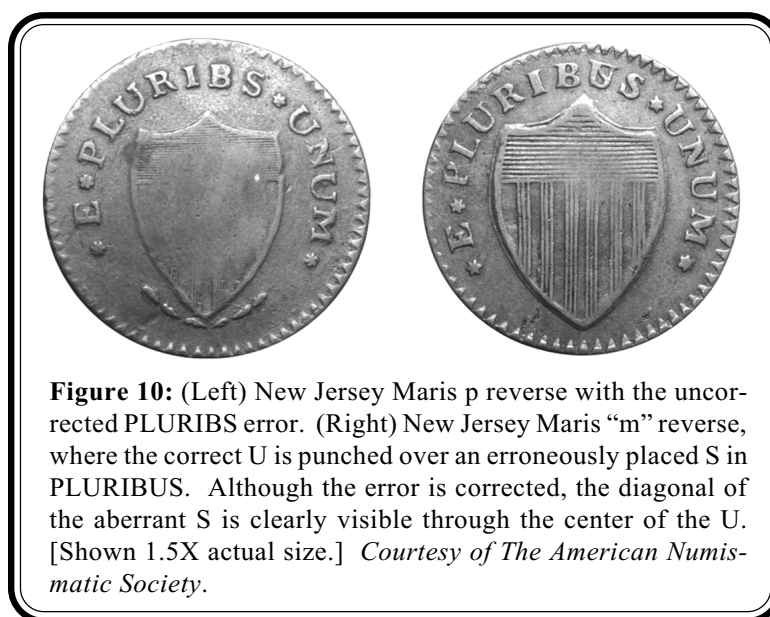


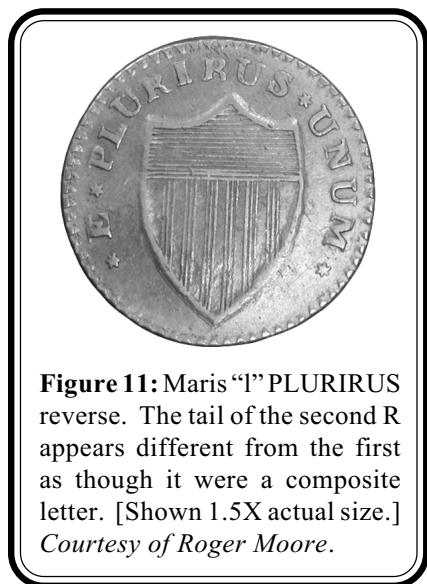
Figure 10: (Left) New Jersey Maris p reverse with the uncorrected PLURIBUS error. (Right) New Jersey Maris "m" reverse, where the correct U is punched over an erroneously placed S in PLURIBUS. Although the error is corrected, the diagonal of the aberrant S is clearly visible through the center of the U. [Shown 1.5X actual size.] *Courtesy of The American Numismatic Society.*

Notable in the New Jersey State coinage is the Maris "p" reverse, where a U was omitted in the intended PLURIBUS which forever became PLURIBS. This mistake evidently was not troublesome enough to retire the die since it was married to two different obverses and enjoyed a long life as 60-p and 61-p. The same initial error occurred in the Maris "m" reverse where the legend again started as PLURIBS. Here, however, the diesinker was alert to the mistake and adroitly cor-

18 Henry C. Miller, *The State Coinage of Connecticut* (New York, 1920, repr. 1962), p. 49.

19 Miller, *The State Coinage of Connecticut*, p. 45.

20 Obverses Newman 2 and 23.



rected himself by overpunching the incorrect S with a proper U and then added the terminal S.

In another instance within the Maris 27 obverse of the New Jersey series, the incorrectly punched word in the legend, CÆSRREA, was also recognized in time and the first R was overpunched by an A to correctly form CÆSAREA.

The PLURIRUS observed on Maris reverse "I" could have represented a different situation from the Maris "p", "m" and 27 dies just discussed. The second R could have been intentionally placed if the B punch were broken and the die sinker substituted the R punch but failed to close the base of the R by hand to transform it into a B. If that were the case, then this apparent misspelling was not a mistake, *per se*, in our definition on the word but rather an incomplete letter substitution. However, if the legend PLURIRUS had passed unnoticed, then it is to be added to the census of uncorrected error coins.

b. Blundered legends

Incomplete letter substitutions, which may be a possible explanation for the PLURIRUS reverse, have a long history. For coins that circulated in America, the William and Mary and William III coppers characteristically use an unbarred inverted V for some of the A letters in MARIA and BRITANNIA. Many of these Δ letters show an embryonic bar as if some effort, however feeble, were made to pass it off as an A – while in other instances, there was no attempt at a reasonable substitution. Peck feels that the employment of this unfinished Δ punch was a deliberate cost-cutting measure on the part of the private contractors entrusted to mint this series, that, as a group, was typically fraught with errors, either "due to carelessness or just plain ignorance."²¹

Within the 1787 Connecticut Draped Bust Left series, many so-called "blundered legends" contain misspellings. The traditional interpretation has held that these "misspellings" were quite purposeful and resulted when the die sinker had to compensate for a broken, or otherwise unavailable punch.²² Since these "misspellings" occur with such regularity, it is hard to conceptualize how a capable diesinker – probably Abel Buell – could persevere in committing identical errors on so many dies and not learn from his mistakes. Thus on several observes we see AUCIORI,²³ where an I is used for a T; AUCTOBI,²⁴ where the B takes position as a surrogate R; and AUCTOPI,²⁵ where a P now serves as an R. On two other obverses, CONNLC²⁶ and CONNFC²⁷ occur where the L and F were never completed into the missing E, despite the fact these dies were married with reverses where E appears twice in both ET and INDE. However,

²¹ *Op. cit.*, pp. 168-69; quote p. 168.

²² Edward R. Barnsley, "The Bizarre Lettering of Connecticut Coppers," *CNL* 34 (1972), pp. 356-67.

²³ Miller 38 – 2 dies.

²⁴ Miller 39 – 3 dies.

²⁵ Miller 40, 41, and 42 – total of 5 dies.

²⁶ Miller 50 – 1 die; (same as 1788 Miller 17 – total of 2 dies).

²⁷ Miller 43 – 2 dies.

this observation may not be valid if the obverse and reverse pairs were not sunk at the same time and an E may have become available for the reverse. On the reverse of certain dies, the unfinished IIB²⁸ and LIR²⁹ both appear in lieu of LIB. In the 1788 Draped Bust Left series, there are two instances of a INDL reverse.³⁰

What remains unexplained is why an experienced engraver did not make better accommodations for his missing tools? Edward Barnsley illustrates how some letters within the Connecticut legends were actually constructed by punching together their component segments, such as an L, formed from an inverted I to which a small foot was added, and the letter T, composed from a crossed I. Reading through the Miller descriptions of the 1787 varieties, one finds at least 11 examples where a B had been fashioned from an R, five instances can be counted where an E was made by finishing an F, and five more where the R looked improvised with a flowing tail.³¹ In reexamining the “blunders,” it would seem logical that in AUCIORI, compensation for the missing T could have been easily made by the addition of a crossbar to the first I; the unavailable R punch needed in both AUCTOBI and AUCTOPI could have been fashioned by adding a “right hind leg” to a P. In the IID dies, with little effort, a present-day critic would suggest that a short base stroke could have satisfactorily completed the substituted I into an L; in LIR, the bottom of the R could have been closed into the needed B. In the same manner, the terminal L in the INDL reverses could easily have been transformed into an E with two easy punches. Basically, only T, R, L, B and E punches were missing and so the question remains, why were these “blunders” committed when we observe that in so many other instances the Connecticut coiners exercised their ingenuity and punched many letters from their component strokes – among them T, R, L, B and E?



Figure 12: 1787 Connecticut Miller aa reverse showing FNDE over FUDE error where the N is punched over a U, and the F remains. [Shown 1.5X actual size.]
Courtesy of The American Numismatic Society.

Based on his extensive study of Connecticut legends, Barnsley considered these misspellings as “unfinished improvisations” rather than “blunders,” except for the FNDE reverse on the 1787 Miller “aa” die which he considered a genuine engraving error.³² The same mint that produced the Connecticut coppers also made the 1787 Fugio cents. It is postulated that the diesinker, who worked on both series, was distracted and started to punch FUGIO rather than INDE. The artisan got as far as the FU, caught his mistake, corrected it by punching an N over the U, but incompletely obliterated the cross bar on the F so that the legend became FNDE over FUDE.³³

5. Die breaks

If a defect or weakness in the steel blank used to sink an embossing die went undetected, that area was inherently at risk for fracturing when subjected to the stress of the coining press. This die break might have

occurred immediately such as is postulated with the Vermont Ryder-Richardson 15 reverse of

28 Miller ii, kk, LL – total 5 dies

29 Miller cc, ee, ff, gg, hh – total 18 dies

30 Miller 16-O, 17-O.

31 Miller, *The State Coinage of Connecticut*, *passim*.

32 Barnsley, *op cit.*, pp. 361-62.

33 See *Taylor Sale*, lot # 2491.



Figure 13: An early (left) and late die state (right) of the 1787 Connecticut obverse Miller 4 showing the development of the advanced die break which earns this copper the sobriquet, the “horned bust” variety. [Shown 1.5X actual size.] *Courtesy of The American Numismatic Society.*



Figure 14: The characteristic die break through the face of the 1787 Connecticut obverse, Miller 33.28, was reminiscent of the long slender bill of a snipe (a game bird in the sandpiper family hunted to near extinction in the 19th century) and hence the name, “snipe nose” variety.³⁷ [Shown 1.5X actual size.] *Courtesy of The American Numismatic Society.*

1787.³⁴ Tony Carlotto demonstrates that the Bressett-I reverse is actually an overdate, 1787 over 1786, and postulates that the die break began when a 7 was punched over the 6 in 1786 as the date was advanced to the next year. There are many rarities within the state coppers series suggestive that other dies sustained fatal breaks after only a few examples were struck.

In the majority of cases, die breaks developed after prolonged use so that there are early populations of coins with

no injury while later ones carry the telltale impression of the break that may be seen to progress with time. We have seen how the damage in the Bressett-I reverse was initiated with a number punch and similarly, in other instances, a die clash could have been the primary injury when a direct blow from an opposing die either initiated, or accelerated, a cascade of progressive die deterioration in the other member of the pair. By analyzing the gradual physical changes on the struck coins as die impairment advanced with time, the numismatist has a valuable tool with which to study emission sequences and die marriages. Michael Hodder's analysis of the New Jersey die, Maris J, is the ultimate example of the progression of die damage where he followed this single reverse die through ten obverse pairings.³⁵ The most remarkable example of die break progression within a single variety is the 1787 Connecticut Miller 4 obverse, the so-called “horned bust.” In this instance, unsuccessful attempts to control the damage by lapping the die are also observed.³⁶ As the surface of the die was planed down during each successive lapping, the more shallowly engraved details, particularly the curls at the base of the neck, were obscured or

34 Tony Carlotto, *The Copper Coins of Vermont* (Chelsea, MI, 1993), pp. 124-27.

35 Michael Hodder, “New Jersey J, A Biennial Die,” *American Journal of Numismatics*, vol. I, 2nd series (1989), pp. 195-237.

36 Philip L. Mossman, *Money of the American Colonies and Confederation*, (New York, 1993), p. 164; Spilman, “Overview,” *CNL*, pp. 824, 825. See Edward R. Barnsley, “Nicknamed Connecticut,” *CNL*, p. 385.

37 “Hall and Miller nicknamed the 1787 M.33.28 obverse die the ‘Horned Nose’ when in combination with reverses Z.11 and Z.16. Walter Breen renamed 33.28-Z.16 the ‘Snipe Nose’ and 33.28-Z.11 the ‘Other Snipe Nose.’ I, [Hodder] in my wisdom, nicknamed 33.28-Z.20 (the third of the three known 33.28 combos) the ‘Rarest Snipe Nose’ even though obverse 33.28 is in its earliest state in that marriage and doesn’t show the snipe nose break.” Personal communication, Michael Hodder, 23 Jan. 2004. See Barnsley, “Nicknamed Connecticut,” *CNL*, p. 386.



Figure 15: This is an early die state of the "goatee" variety (1785 Connecticut Miller 6.2), where the break progresses from the chin to the chest and eventually involves the mouth and face before finally extending to the forehead. [Shown 1.5X actual size.] *Courtesy of The American Numismatic Society.*



Figure 16: 1785 Connecticut Miller 6.5 obverse with a rim cud extending over ONNE. [Shown 1.5X actual size.] *Courtesy of The American Numismatic Society.*

even obliterated. History supports the mint master's prudent decision to have attempted this repair, because this very robust die, in marriage with 1787 Miller reverse L, was responsible for the largest population of any single Connecticut variety surviving today!

Another famous Connecticut copper is the 1786 Miller Obverse 1, nicknamed, because of the die break, the "double chin." Both S. S. Crosby and Miller attributed this grotesque physiognomy to a rudely cut die while Barnsley shows how this profile progressed from an inconspicuous flaw in an early die state to advanced die failure.³⁸

a. Rim cuds and die chips

A very specific type of die break is the rim cud, caused when a break occurs at the die margin. Since a piece of die actually falls out, this void, created on the periphery of the die, will impart a raised defect along the rim on all subsequently struck coins. If a piece of die should chip away within its more central regions, the result is an elevated area on the coin as the metal flows to fill this flaw.

6. Die failure and die bulging

The central figures and legends of certain dies were so shallowly sunk that even well struck examples have low relief and poor detail. Typical of this is Connecticut 1787 Miller 5.8, pictured in Figure 22, where frequently the legends may be barely visible, even on high grade examples. These low relief features are not errors *per se*, but may represent the work of an apprentice or less experienced diesinker. Such dies tend to wear out more quickly than better prepared ones, another reason accounting for the rarity of certain varieties. It is obvious that all dies will eventually fail due to the repeated trauma of normal use but their deterioration may be accelerated by cumulative injuries such as die breaks and clashing

as previously described. Since dies were quite expensive, they were retained in use as long as possible and usually not discarded until absolutely necessary.

A specific pattern of die failure is seen in central die bulging when a prepared steel die is not sufficiently hardened, and, with repeated striking, the center of the die gradually collapses inward imparting a raised area, or bulge, in the mid-portion of the struck coin.³⁹ This central depression of the die causes a reciprocal convexity over the surface of the struck coin which is particularly

38 Barnsley, "Nicknamed Connecticuts," *CNL*, p. 384. Miller, *op. cit.* p. 14, parrots Crosby and describes it as a "Rudely cut die with heavy features and double chin."

39 Spilman, "Overview," *CNL*, p. 814.



Figure 17: (Left) 1785 Vermont obverse Ryder-Richardson 4 (Bressett 3) die bulging and failure typical of this variety with loss of detail of the landscape. As this breakdown progresses in later strikes, even more of the legends are lost. *Courtesy of Ray Williams.* (Right) Maris 60 obverse with the obliteration of the detail of the horse's neck as the central area of the die collapsed. [Shown 1.5X actual size.] *Courtesy of The American Numismatic Society.*

apparent on some wide planchet New Jersey coppers such as obverse Maris 60 and 62-q,⁴⁰ and on the obverse of Vermont landscape Bressett-3 (Ryder-Richardson 4).

C. Planchet Errors

1. Defective planchets

Impaired planchets were common in certain Confederation series, notably in early Vermont coins, where imperfection was the rule, rather than the exception, due to the poorly refined copper available to the Rupert Mint. If the impurities in the copper were inadequately removed during the smelting process, foreign material could have become fused into the substance of the planchet and remained evident on the struck coin.

On others, retained dross, actually incorporated into the finished planchet, could eventually fall out of the struck coin leaving a hole or impaired edge.



Figure 18: (Left) 1786 Connecticut Miller 5.4-O.1 showing an obverse defect where retained impurity from the center of the planchet fell out after striking leaving a natural hole. (Right) 1787 Connecticut Miller 12-Q [1787 over 1887 variety] with a defective planchet where dross retained from inadequate smelting later fell from the edge of the struck coin. [Shown 1.5X actual size.] *Courtesy of Neil Rothschild.*

⁴⁰ See Taylor Sale, lot #2258.



Figure 19: A series of Vermont defective coppers with planchet splits caused by metal defects. Shown are reverse RR-2 (Bressett-A), obverse RR-16 (Bressett-15), obverse RR-39 (Bressett-25; 1788 Connecticut Miller-1). [Shown 1.5X actual size.] *Courtesy of Tony Carlotto.*



Figure 20: This Connecticut 1787 Miller 3-G¹ is significantly out-of-round. The defect could have been caused during flan preparation, but more likely is due to unequal pressure during striking. Note a similar irregularity of the rotational double strike in Figure 47. [Shown 1.5X actual size.] *Courtesy of Neil Rothschild.*



Figure 21: (Left) 1787 Connecticut Miller 33.32-Z¹³ showing advanced die failure with lack of clarity of the central figures. On the obverse at 8:00 o'clock, a triangular-shaped planchet lamination starts at the rim below the A in AUCTORI and extends towards the bust's Adam's apple. Compare the degree of die failure seen here to that of the 33.32-Z¹³ illustrated on page 2596. [Shown 1.5X actual size.] (Right) This closeup edge view of the same lamination defect shows it to remain attached on just a single side. One can visualize how a layer of foreign matter, that did not fuse with the copper, fell out of the finished planchet leaving this residual cleft. *Courtesy of Neil Rothschild.*

2. Laminations and striations

Laminations in the surface of the planchets were caused when retained impurities in the metal became incorporated to some degree or another within the finished product. If the impurity was fused under the surface of the planchet, it may cause the flan to separate into layers, or delaminate, leaving voids in the surface.

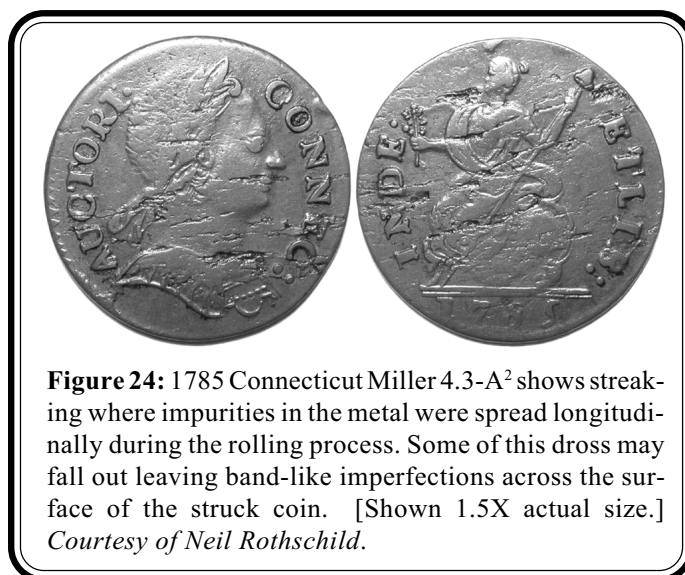


Figure 22: (Left) On this 1786 Connecticut Miller 5.8-F off-struck specimen, the same condition seen in Figure 21 is carried one step further where the loose metal delaminated leaving a post-strike void extending into the midsection of the seated reverse figure. On this variety, the legends are rarely well struck, indicative of shallow dies. *Courtesy of Neil Rothschild.* (Right) The lamination on the edge of this 1787 Vermont RR-12 fell off after striking. [Shown 1.5X actual size.] *Courtesy of Tony Carlotto.*



Figure 23: A series of state coppers with planchet defects: on the far left a 1788 Miller 8 Connecticut copper shows a deep planchet split and lamination defect similar to Figures 21 and 22. On the other three, left to right, RR-14, RR-8, RR-23, the planchets delaminated before striking, but, despite these apparent voids, they were fed into the coining press where the delaminated areas received impressions as indicated by the arrows. [Shown 1.5X actual size.] *Courtesy of Tony Carlotto.*

If the metal were streaked with impurities, the planchet may show longitudinal striations as this foreign matter is spread across the planchet as it is rolled to the desired thickness. Such a scenario is easily replicated when preparing piecrust or cookie dough when unmixed ingredients become streaked along the track of the rolling pin.



While certainly very interesting and instructive as to early minting practices, these laminations and striations just described are errors because they do not conform to the goals of the mint master. By the same token, they are not unexpected because they occur within the limitations of the imperfect metallurgy available to some early mints. What might be viewed on a Vermont landscape flan as a typical “business as usual” flaw, would be a grievous planchet error on a Massachusetts copper where any mint error is a distinct rarity due to the high standard of quality at that facility.

3. Planchet rolling errors; light and heavy weight coins

Planchet production was probably the greatest challenge facing the early mint master as he attempted to roll or draw planchet stock to the desired thickness.⁴¹ During that period, the rollers were cast iron with inherently rough surfaces that were difficult to align accurately and as a result, Confederation coppers show great individual variation in fabric, thickness and weight. A metrological analysis of coins from the various Confederation period mints shows their weights generally conform to a normal distribution curve but with a high standard deviation in the average.⁴² This broad range of standard deviation is a statistical affirmation of the observation that these coppers varied a great deal, one from another, in their individual weights – all due to the lack of precision in adjustment of the primitive iron rollers used to prepare the planchet stock. Even under the best conditions available to Abel Buell at the authorized Connecticut mint, the weights of his legal coppers varied among themselves by an average of $\pm 8.2\%$. For example, the average weights of his 1785 and 1786 Mailed Bust issues ranged from 124.1 to 146.5 grains (135.3 ± 11.2) just barely achieving the legal standard of 144.0 grains. The Draped Bust Left issues of 1786 and 1787, and the 1787 Mailed Bust Left varieties, on the average, exceeded, or were only a fraction shy of, the required 144.0-grain goal.⁴³ Even as these average weights approached more closely the statutory weight requirement, there was no decrease in their standard deviations indicating that while they were heavier, their individual variation was unaltered showing no improved precision in the overall planchet rolling technology.

41 Spilman, “Overview,” *CNL*, p. 800; *Walter Breen’s Complete Encyclopedia of U.S. and Colonial Coins* (New York, 1988), p. 146.

42 See Philip L. Mossman, “Weight Analysis of Abel Buell’s Connecticut Coppers,” *Money of Pre-Federal America* (New York, 1992), pp. 104-26, for a metrological study of the output of the legal Connecticut mint. See also Mossman, *Money*, pp. 208-13.

43 *Op. cit.*, Mossman, “Abel Buell,” p. 110.

To emphasize the sensitivity of the rolling process, a Connecticut copper measuring 28 mm. in diameter at the regulation weight of 144 grains, would be 1.71 mm. thick. If this planchet stock were reduced by the thickness of a piece of paper, or 0.10 mm., the net weight of the coin would now be 135.3 grains. The lightest Abel Buell copper in my personal collection is the rare 1785 Miller 7.2-D weighing 107.4 grains. This coin calculates at 1.28 mm in thickness, or 25% less than the thickness required to achieve a planchet of proper weight, or merely the bulk of four sheets of standard paper!

Coppers from the several unauthorized Connecticut mints were much lighter than the standard since a thinner planchet was one way for an illicit moneyer to wring more profit out of his investment and, of course, this "less is best" rule was the guiding principle in counterfeit production. As another action to avoid the technological headaches of planchet preparation, while at the same time reducing overhead, several mints resorted to overstriking their products on lighter, demonetized coins available in bulk at reduced cost. Whereas such state coppers overstruck on host coins are a curiosity, they are not mint errors since the minter quite intentionally fed less valuable coppers into his press as a source of ready-made planchets.

Now the question becomes, is a very light or very heavy coin from a legal state mint considered an error that slipped by whatever quality control may have been in place, or just a curiosity? Regal halfpence struck at the Tower Mint were only tokens authorized at so many pieces per pound of metal. Since the number per pound was the determining factor, a wide variation in the range of individual coin weights was permissible.⁴⁴ For state issues, the authorizing legislation set the weight requirement per individual coin which was not a very practical demand considering the limitations of the available technology.⁴⁵ Nonetheless, the average weights of coins from legal mints generally met or exceeded these parameters.⁴⁶ It is my feeling that any obvious outlier coin from a legitimate operation, falling at either weight extreme, does not comply with the moneyer's intent and in that sense is an error coin. For example, if one of Buell's 1785 and 1786 coppers, which we find ranged from 124.1 to 146.5 grains, was discovered at 90 grains, I would call this an error. This argument is weakened if the minters purposely let any off-weight planchets pass unchallenged considering that it might have been more costly to cull them for reprocessing; historically, I suspect the community was quite ambivalent as to planchet quality. Within a clandestine counterfeit operation, it was their objective to issue lightweight coins and here a significantly heavy coin deviated from the norm.⁴⁷ In my judgment, it becomes a matter of individual opinion if one considers flaws of unusual weight are errors or oddities.

4. Planchet roller marks; other metal flow phenomena

The imprint from the rough surfaces of the crude iron rollers, used to flatten the planchet stock to the desired thickness, was transferred onto the copper strips during the rolling process. By looking ahead to the illustration of the off-struck copper, Figure 44 top, one can see the irregular condition of the virgin planchet surface in the unstruck area of the coin. These telltale roller marks on the planchet may remain visible on the coin if the planchet were not adequately softened, or annealed, prior to striking, or if the metal did not flow completely into the depths of a deeply sunk design on the die and the higher relief areas escaped compression. If a planchet were softly struck, a similar result could occur when insufficient pressure was exerted so that the intrinsic pattern on the rolled flan may not have been completely obliterated.

⁴⁴ Peck, *op. cit.*, pp. 622-23; for the years 1694 to 1727, the average weight of halfpence did not reach the required nominal weight per pound.

⁴⁵ Sylvester S. Crosby, *The Early Coins of America* (Boston, 1875, repr.1974), pp. 144, 150, 178.

⁴⁶ Mossman, *Money*, pp. 208-10.

⁴⁷ These counterfeit coins would of course exclude cast copies.

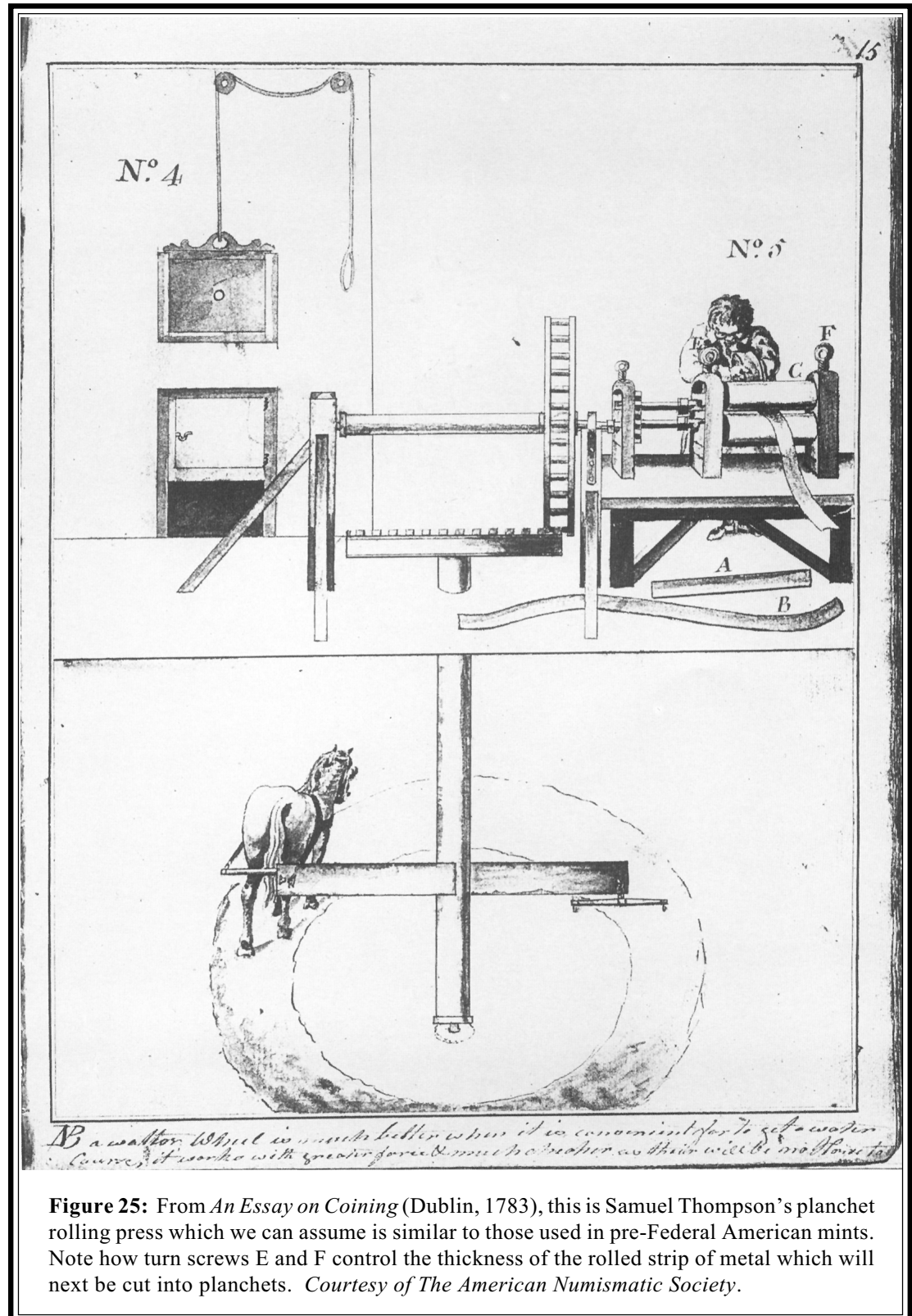




Figure 26: Planchet roller marks remain visible over the obverse bust of this very famous Machin's Mills imitation halfpenny, Vlack 9-76B. Here, the planchet was not sufficiently annealed, or softened, prior to striking. Since the metal was harder than usual, the pressure of the coining press was inadequate to extrude the copper into the deeper aspects of the die and thus the roller marks over the obverse bust were not obliterated. [Shown 1.5X actual size.] *Courtesy of The Eric P. Newman Numismatic Education Society.*



Figure 27: (Top) Note in the poorly struck right side of 1787 Connecticut Miller 38-gg, the landscape of the virgin planchet is still apparent with visible roller marks. (Bottom) Over the obverse bust and reverse figure on 1787 33.36-t, the areas of higher relief, which did not completely fill the recesses of the dies, still show the stippling effect of the residual roller marks. Such roller marks are fairly common and should not be misinterpreted as post-strike damage. Also see Figure 44 for roller marks in the unstruck fields of an off-struck coin. [Shown 1.5X actual size.] *Courtesy of Neil Rothschild.*



Figure 28: Metal flow defects were common on Vermont coppers (left to right RR-16, RR-16, RR-25) where the central devices were so deeply cut, that often there was insufficient metal to fill the deeper recesses of the die leaving natural "scooped out" defects. [Shown 1.5X actual size.] *Courtesy of Tony Carlotto.*

Consequences of impaired metal flow are noted when the devices on a die were so deeply sunk there was inadequate copper to entirely fill all the recesses of the die resulting in poor detail over the high relief areas as is typically seen over the obverse bust of the Connecticut "Hercules" heads.⁴⁸ This phenomenon is common on very thin planchets where there just was insufficient copper to simultaneously fill all the incused spaces of both the obverse and reverse figures causing a "scooped out" defect over the more deeply sunk portions. While not an error, bifurcation, or increased metal flow toward the periphery, can be seen when the coin was struck with more than usual pressure and the serifs of the letters elongated in a radial direction. Some of these letters, which take on a different appearance, have actually been confused as a new die variety.⁴⁹

5. Planchet cutting errors

After the copper passed through the rolling mill and emerged as a strip of the desired thickness, the metal had become work-hardened and required annealing, or softening, before it could be satisfactorily worked again. In America, planchet cutting was accomplished by a telescoping cookie cutter device, whereas in England, a shearing style "punch in hole" planchet cutting press was employed as shown in Figure 29.

a. Cutter marks

Understanding errors in planchet cutting requires a description of the tools and processes used to cut planchets from copper strips after passage through the rolling mill. The typical planchet cutter used for Confederation period coppers, described and illustrated by Spilman, appears to have been the same type of instrument used in all the early American mints.⁵⁰ As Spilman further explains, "I am not at all certain that we can think that the cookie-cutter design is uniquely American or that the cylinder and hole planchet cutter [cf Figure 29] is uniquely English ..." since the cookie-cutter was actually French in origin as illustrated by Denis Diderot from the Paris Mint in the 1750s.⁵¹ This device was in the form of a pair of cookie cutters with sharpened edges, with one of the pair being slightly larger than the other allowing them to fit into each other. The copper strip was placed between these two opposing sharp edges. When the uppermost cutter was lowered by the movement of a screw press, the two cutters telescoped together thus cutting the planchet stock from both sides simultaneously. This combined cutting action from the two cutters left the finished planchet with a very smooth, rounded edge. The punching-action of an English-style planchet press (Figure 29) produced shear marks and resulted in bowed planchets with square edges that had to be straightened before they could be struck. Thus by examining their periphery in a near mint state coin, the type of planchet cutting device used to cleve them can be determined.

48 Miller 1786 obverse 5.3 and 1787 obverse 7.

49 Edward R. Barnsley, "A Recut New Jersey Reverse, Maris 'v'," *CNL*, pp. 18, 19, 20, 34.

50 Spilman, "Overview," *CNL*, pp. 788-98. See p. 790 for a sketch of an early American planchet cutting tool.

51 Personal communication, 30 Jan. 2004. See also Cooper, *op. cit.*, chap.10, "Preparation of Blanks."

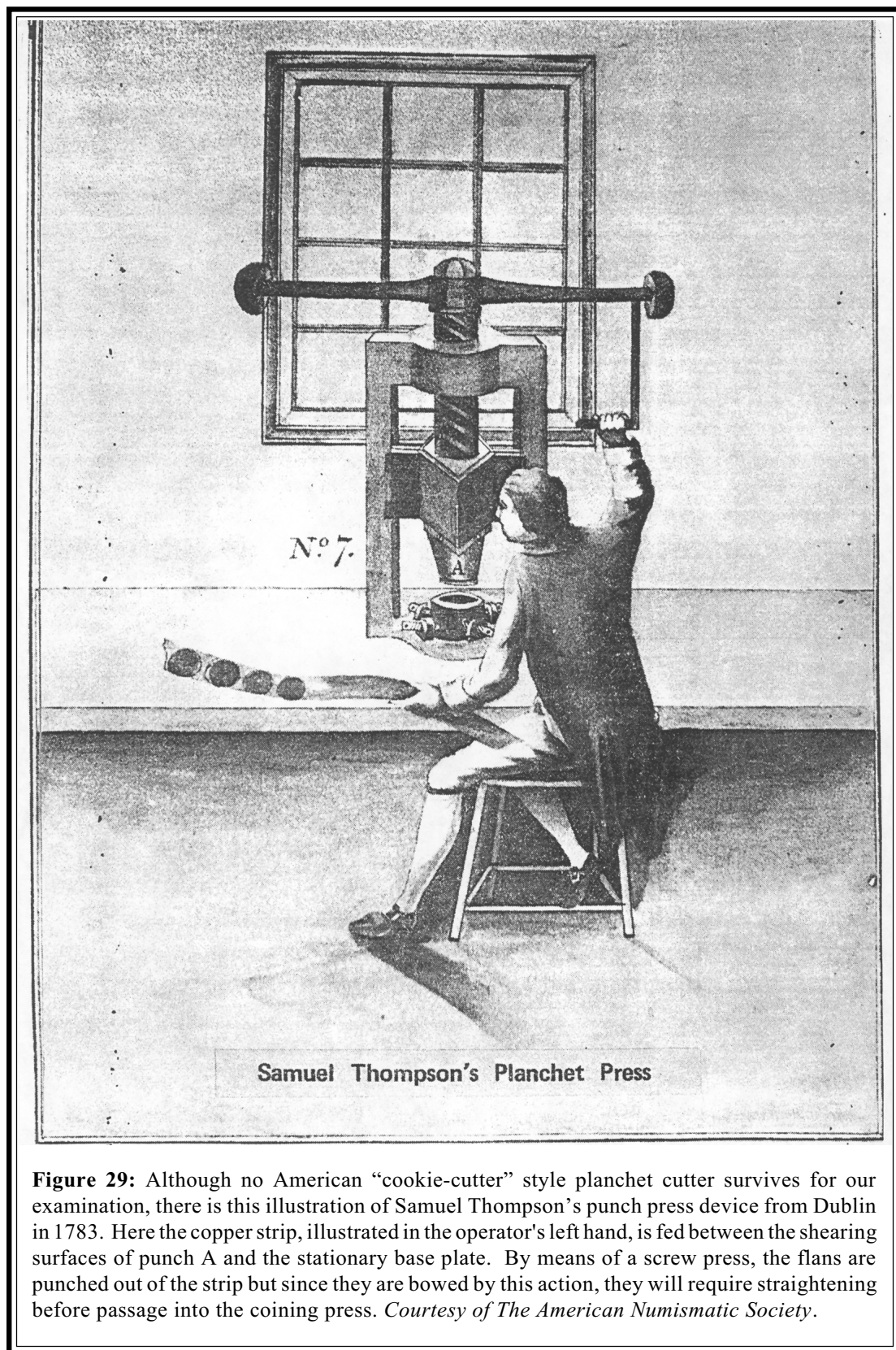


Figure 29: Although no American “cookie-cutter” style planchet cutter survives for our examination, there is this illustration of Samuel Thompson’s punch press device from Dublin in 1783. Here the copper strip, illustrated in the operator's left hand, is fed between the shearing surfaces of punch A and the stationary base plate. By means of a screw press, the flans are punched out of the strip but since they are bowed by this action, they will require straightening before passage into the coining press. *Courtesy of The American Numismatic Society.*

If the telescoping cookie cutters, as used in America, did not pierce the metal strip cleanly on the first attempt, a subsequent blow, or blows, was necessary. If any section of the cutting edge of the “cookie cutter” became dulled, worn or otherwise defective, it could leave a diagnostic rim burr on the edge of the finished planchet.⁵²



Figure 30: A “hang-nail” rim burr defect is still intact on this Connecticut 1787 Miller 1.1-A. This remnant resulted from the imperfect cleavage of the dulled edge of the planchet cutter. *Courtesy of The Colonial Newsletter Foundation.*



Figure 31: This planchet cutter’s error on a Machin’s Mills copper, Vlack 11-78A was selected for illustration because the partial cleavage on both sides coincide exactly showing that the planchet was cut from both sides simultaneously and not punched through from a single direction as on an English-style punch press. [Shown 1.5X actual size.] *Courtesy of Neil Rothschild.*

If, in preparing to cut a new planchet, the stock was not advanced more than the diameter of the previously cut, a partial incision could have been started before it was noted that more metal was needed for a new planchet. If the stock was then advanced the proper distance and a second complete cut made further down the strip, any circular impression from the premature partial cut would remain visible on the flan. These planchet cutter’s errors are known on Nova Constellatio, Vermont, Connecticut, New Jersey, Fugio, and Machin’s Mills coppers but none have been reported on Massachusetts coins. This does not presuppose that this type of planchet cutter was not used by the second Massachusetts mint, but probably reflects a more vigilant quality control in the state run operation that would have culled out imperfect planchets.

b. Mint-made planchet clips

Two types of mint clips are found, circular and straight. The most common was the circular clip formed whereby the cutting edge of the planchet cutter was actually placed over the outer margin of the circular hole left in the flan stock from an earlier cut. This encroachment created a circular arc defect in the new blank. A second type of mint clip left a straight edge running across a side of the flan. This defect is less common and occurred when the planchet cutter was either a bit too close to the long, straight edge of the stock or too close to its end.

Neil Rothschild studied mint clips in 197 die varieties of Connecticut coppers and found them present, in varying degrees, in 6.34% of the 10,944 coins he evaluated. Those coppers in which he recorded a significant number of clips are noted in Table I where it will be seen that 1787 Miller

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52 Spilman, “Overview,” *CNL*, pp. 794-95.

1.1-A was the most commonly involved.⁵³ All those listed in Table I were from unauthorized sources, a euphemism for contemporaneous counterfeits of the legal Connecticut issues. The probable cause for this high incidence of mint clips in these certain varieties was that the moneyer, some truly parsimonious Yankee, cut the planchet stock to its greatest advantage.⁵⁴ It is less likely that a crimp in the cutting edge of the planchet cutter created the flaw since the clips are not uniform and come in many different dimensions.

Table I: Varieties of Connecticut Coppers
Examined with over 10% Clipped Planchets
(after Rothschild)

Year and Miller #	Number	% clipped
1785 1-E	70	27.1
1786 3-D.1	46	21.7
1787 1.1-A	136	36.8
13-D	102	19.6
1.2-C	130	11.5
1788 6-H	32	18.8
11-G	113	20.4
14.2-A2	51	11.8
16.1-H	63	17.5
16.5-H	61	27.9



Figure 32: (Left) Circular mint clips are very common on 1787 Connecticut Miller 1.1-A coppers, approaching 37% of all examples. A defective planchet cutter is excluded as the cause since these clips vary in size and shape. *Courtesy of The American Numismatic Society.* (Right) The extreme circular mint clip on this 1773 Virginia halfpenny is a rarity not only both because of its size, but because it occurred at the London Tower Mint which practiced a more vigilant quality control as compared to our domestic facilities. [Shown 1.5X actual size.] *Courtesy of Neil Rothschild.*

⁵³ Personal communication, Neil Rothschild, 21 Jan. 2001.

⁵⁴ See Taylor Sale, lot #2390 where a single 1787 Miller 1.1-A has three round mint clips!

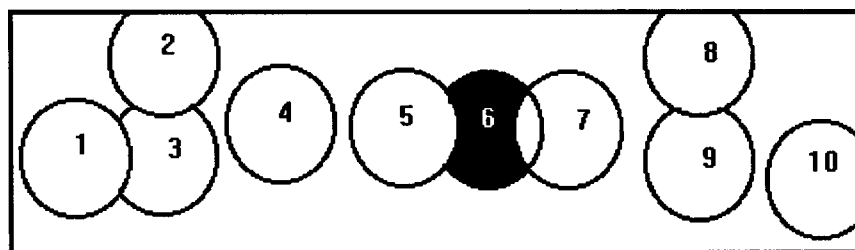
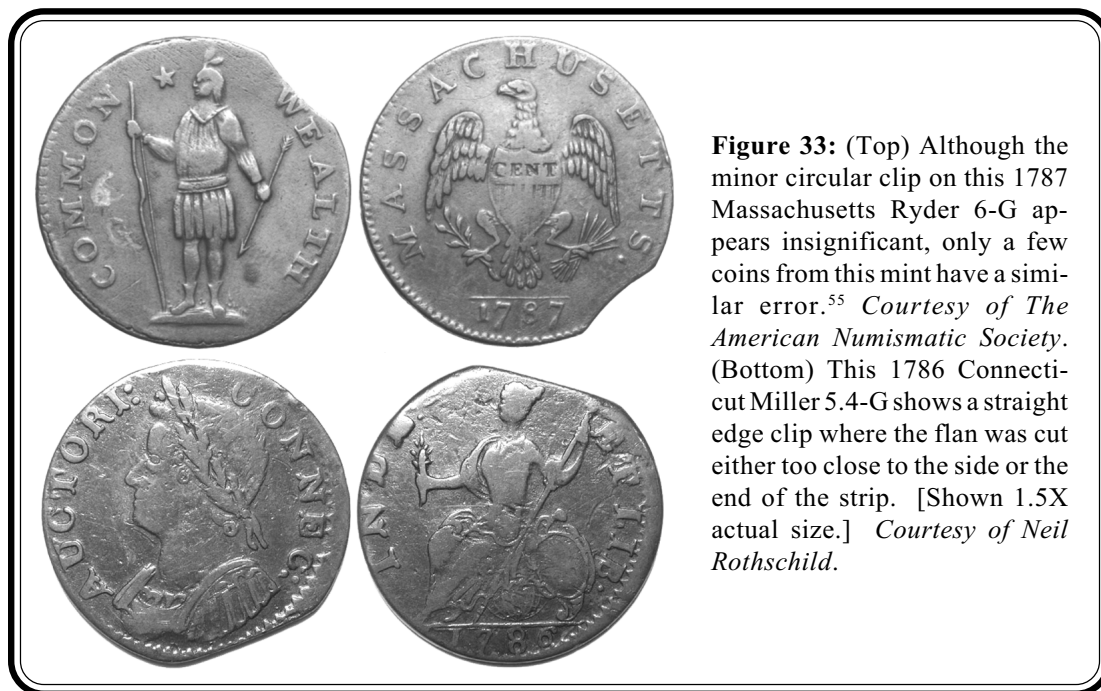


Figure 34: Summary of the various types of mint clips cut on blanks cut from a planchet strip going from left to right

1. full cut
2. cut too close to edge with straight edge clip, like #8 and #10 – cf Figure 33 bottom.
3. cut too close to #1 and #2 with two circular clips – cf Figure 45.
4. full cut
5. full cut
6. partial cut started too close to #5; aborted and moved to right to become #7.
7. full cut which includes the circular mark of partial cut of #6 [planchet cutter's error] – cf Figure 31.
8. too close to edge with straight edge clip, like #2 and #10 – cf Figure 33 bottom.
9. single circular clip – cf Figures 32 and 33 top.
10. cut too close to edge producing straight edge clip, like #2 and #8 – cf Figure 33 bottom.

55 Personal communication, Michael Packard, 25 Jan 2001.

D. Errors From the Coining Press

While no pre-Federal presses survive today, two important characteristics of these machines can be gleaned by examining the error coins they struck. Evidence points to the fact that some of the minters, especially Abel Buell, were experimenting with planchet feeders, a device capable of speedier production, but at the added expense of more mint errors.⁵⁶ In fact, it is the presence of such mint errors caused by a prototype planchet feeder that allow us to postulate its very existence. Contemporaneous accounts relate that Abel Buell could operate his press at 120 coins per minute, and if so, that rate could only have been achieved with a planchet feeder. Typically, coins of that era were struck by a screw press with one or two men, depending on its design, operating the weighed fly, while a third, the pressman, would flick a finished coin from the press with his little finger and with the same motion position a new planchet between the dies with his thumb and index finger. The speed at which this trio could function varied by reports from 20 to 60 coins per minute. Dexterity and undivided attention to work were paramount if the pressman intended to preserve his digits for any length of time. In consideration of the workers' personal safety, Challis notes in England there was the practice of striking the smaller coins in the summer when the pressmen's fingers were more nimble.⁵⁷

Charles Smith, studying the incidence of striking errors within a sample of 2000 English George III counterfeit halfpence, found an overall error rate of 10¼%.⁵⁸ Of the total 205 errors, double strikes were the most common at 39%, brockages were 29%, clipped planchets were 10%, and strikes greater than 5% off-center were 6%. The remainder consisted of a variety of multiple error coins, edge tabs, and miscellaneous oddities. In his analysis, he noted that reverse brockages were more common than obverse (63 to 37) which supports the anecdotal data from our state coinages. This prevalence of reverse brockages confirms the observation that obverse dies were customarily placed on top. Since 90% were full brockages, there must have been some planchet-centering fixture employed, an hypothesis supported by the relative infrequency of off-centered brockages.

As Spilman observed, "Every mechanism devised by man has always demonstrated one common characteristic and that is the universal ability to malfunction."⁵⁹ It is such malfunctioning of the early planchet feeders that were responsible for at least four types of errors: [1] failure to eject a struck coin would result in a second strike; [2] failure to center properly a new planchet would produce an off-strike; [3] failure to load a new planchet would cause opposing dies to clash; and [4] if the new planchet did not eject the struck coin completely and a mere edge of the old coin overlapped the new, a small pinched area on one or both of the coins resulted in a tab, or pinched edge specimen. Granted, the first three of these "malfunctions" can be seen with hand-fed presses but the last seems diagnostic of a planchet feeder misfire. The tab or pinched edge can be construed as another fragment of evidence from the coins themselves, pointing to experimentation with a planchet feeder prototype.

56 James C. Spilman, "Abel Buell ~ Our American Genius," *CNL*, pp. 354-55; Spilman, "Overview," p. 783.

57 Challis, *Royal Mint*, p. 411.

58 Charles W. Smith, "The English George III Contemporary Counterfeit Halfpence Series: A Statistical Study of Production and Distribution," *Coinage of the American Confederation Period* (New York, 1996), pp. 32-36.

59 Spilman, "Overview," p. 782.

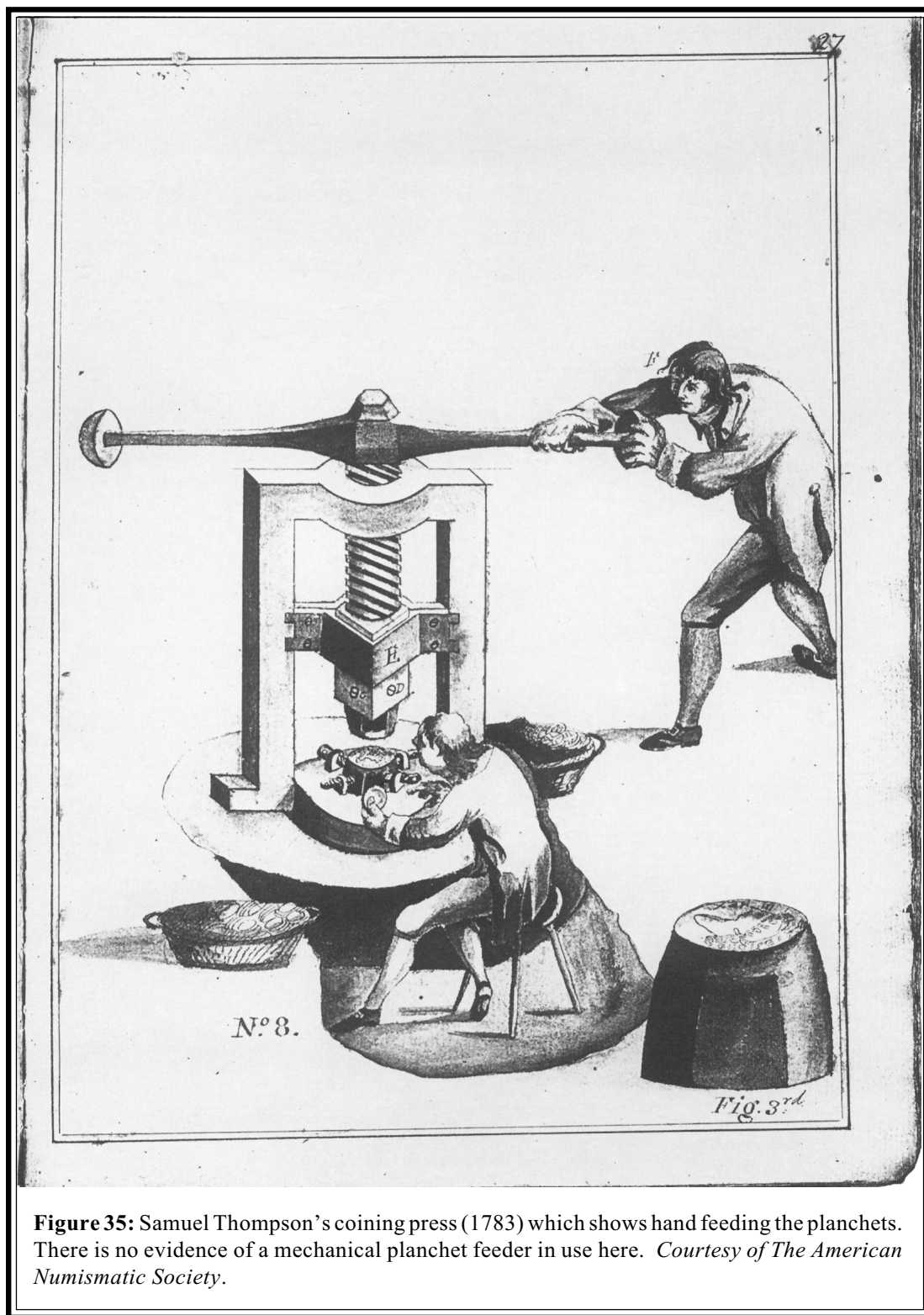


Figure 35: Samuel Thompson's coining press (1783) which shows hand feeding the planchets. There is no evidence of a mechanical planchet feeder in use here. *Courtesy of The American Numismatic Society.*



Figure 36: A tab double strike, or pinched edge on this 1787 Connecticut Miller 11.2-K is suggestive of a planchet feeder malfunction where this coin was not fully ejected before the next planchet was struck. [Shown 1.5X actual size.] *Courtesy of Neil Rothschild.*



Figure 37: (Top) The rim damage on this 1787 Connecticut Miller 38-GG is consistent with edge damage due to planchet feeder malfunction. *Courtesy of Neil Rothschild.* (Bottom) The rim defect, presumably from the planchet feeder, is more subtle on this 1787 Connecticut Miller 5.4-0¹. This area should not be confused with post-strike damage. [Shown 1.5X actual size.] *Courtesy of The Colonial Newsletter Foundation.*

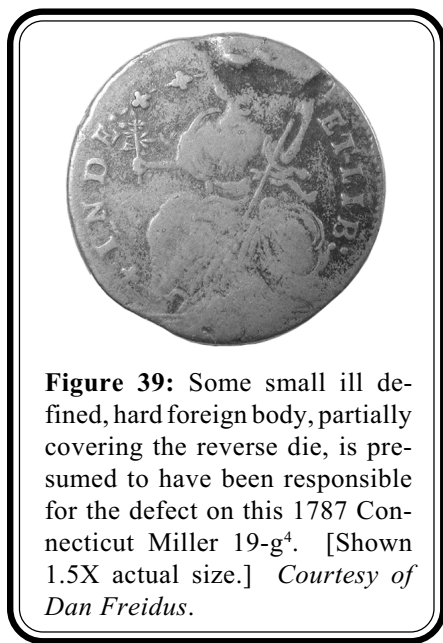


Figure 38: A selection of Vermont RR-16 coppers with rim oddities. [Shown 1.5X actual size.] *Courtesy of Tony Carlotto.*

It must be emphasized again, that all the copper coins of this era under discussion were struck without collars allowing for natural variations in diameter. These disparities became more obvious when a coin was multiply struck, either by accident, or when fed through the press for a second time as a ready-made host planchet to receive the parasitic impressions of new dies.

1. Press loading errors; die rotation

Dies were customarily positioned in the press with the obverse die on top and the reverse die fixed beneath with their vertical axes aligned at 180° to each other so that the coins were struck “coin turn.” There are several instances where state coppers were placed “medal turn” in the press, an orientation at odds with the usual. Challis notes that to align dies perfectly in a press may take up to one-half of a work shift, and thus die changes or adjustment was not casually undertaken.⁶⁰ If a die were inadvertently placed out of proper phase with its mate, it might remain in the incorrect position and strike error coins with so-called “upset reverses” until the next occasion arose for realignment or replacement. Many pre-Federal era coppers are not precisely coin turn and their orientation may even vary within one variety. This suggests that there was some latitude in which dies could be anchored in the press, or that they could gradually rotate over time from their initial position. Again, without the ability to examine the contemporary equipment, we are left to speculate. English coppers of the period, even the counterfeits, were quite consistently “coin turn,” although exceptions exist.



2. Impressions from foreign material

If any hard foreign body inadvertently adhered to a planchet or was accidentally placed between the dies, such as a errant nail, its image could become impressed on the struck coin.

3. Clash marks

If a coining press is run without an interposing planchet, each of the hard steel dies will impress some degree of its design upon its partner. Clash marks (incussions), and even multiple clash marks, are very common in this period under discussion. One might quickly think that the involved pressman was a slow learner if clashing happened for a second time, but then again, as Spilman suggests, this error may be indicative of a misfiring planchet feeder allowing the press to function in an empty mode. Although most clash marks are far more subtle than this, the New Jersey copper, Maris 46-e, is an outstanding example where at least seven succes-

sive clash injuries to the obverse can be counted.⁶¹ The cumulative trauma suffered to this die caused premature failure with severe buckling. Miller described a small raised letter like a c between the A and U in AUCTOPI on most examples of 1787 Connecticut obverse 40. Rather than an extraneously punched letter in the legend as Miller opined, the c is a mirage which turns out to be an incused E from a die clash.⁶²

60 Challis, *Royal Mint*, p. 395.

61 See *Early American Coppers Society Convention Sale*, 5 Mar. 1976, lot #2049.

62 Personal communication, Neil Rothschild, 20 Jan 2004.

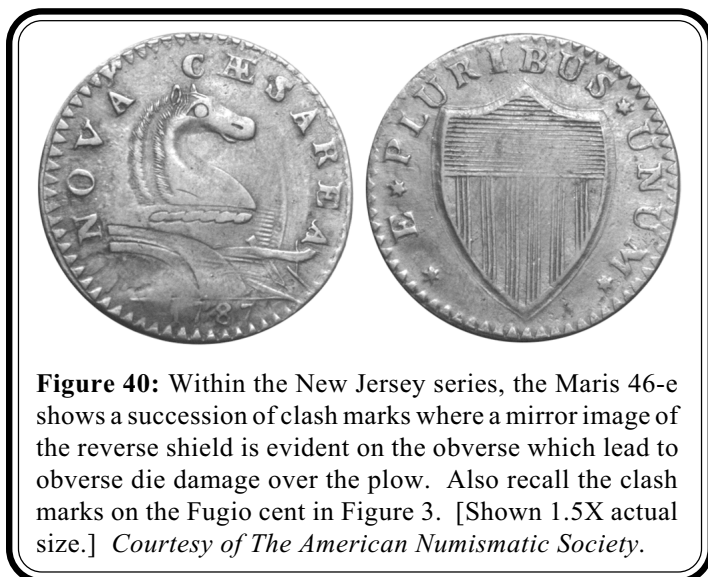


Figure 40: Within the New Jersey series, the Maris 46-e shows a succession of clash marks where a mirror image of the reverse shield is evident on the obverse which lead to obverse die damage over the plow. Also recall the clash marks on the Fugio cent in Figure 3. [Shown 1.5X actual size.] *Courtesy of The American Numismatic Society.*

4. Uniface coins

If two planchets were stuck together and fed into the press, it could produce a pair of uniface coins, one with a struck obverse, and conversely, the other with only a reverse, with both coins having one blank side.

5. Brockages

A brockage – the word derives from the old English meaning rubbish, refuse, scrap of food, or broken object – is a fascinating mint error wherein a new planchet is struck on one side by a normal hardened steel die

while the other face receives a mirror image impression from an already struck coin that has remained adhered to the opposite die. Picture this – planchets are being whisked between the opposing die pairs to be struck at so many per minute as the completed coins are brushed aside into the receiving container. For some reason – either because of retained grease (dies were greased to keep them from rusting) or some other adhesive material – the freshly minted coin failed to eject and adhered to the upper die that raised it up off the lower die. Essentially, for the pressman, his new coin, now stuck to the upper die, disappeared from view. When a new planchet was either placed manually or fed into the press by a mechanical feeder, it was impressed by the conventional die on the bottom, while the other side received a mirror image impression from the softer surface of the retained coin that now acted as an embossing die. This mirror image strike was not as distinct as the conventional strike because the retained copper coin, now acting as a die, was not as hard as the fixed steel die. The scenario just recounted produced a reverse brockage since traditionally the obverse die was on the top and the reverse on the bottom. Because of this die placement, reverse brockages are much more common than obverse brockages. A brockage may be full or partial, depending on how much impression the new planchet received from the adhered coin and may participate into other combinations of striking errors (see below MOS C). As for the coin that was initially responsible for the generation of this error by sticking to the retreating die, one would expect it to be broader and with the clarity of its features subdued from the pressure of the second strike. No Massachusetts brockages have been reported.⁶³

⁶³ Personal communication, Michael Packard, 25 Jan. 2001.



Figure 41: This brockage is a 1787 Connecticut Miller Z¹⁵ reverse struck slightly off-centered. [Shown 1.5X actual size.] *Courtesy of Neil Rothschild.*



Figure 42: This less common obverse brockage can be identified as a 1787 Connecticut Miller 31.1. [Shown 1.5X actual size.] *Courtesy of Neil Rothschild.*



Figure 43: This is a complex partial obverse brockage, about 30% off-set, of a counterfeit George III English halfpenny whose striking sequence is quite elusive. [Shown 1.5X actual size.] *Courtesy of Byron Weston.*

6. Off-center (off-set, or off-strike) coins

When a flan is not seated exactly on the lower die, only a portion of the coin will receive impressions from both dies. The off-center is expressed in terms of percentage of the diameter that is not struck. Charles Smith has presented a quantitative classification system to provide a uniform measurement for strike and die-rotation errors considering all the possible variables.⁶⁴ This paper will conform to his conventions. Multiple off-set strikes (MOS) – that is when an off-centered coin receives more than one strike – will be considered in a latter section.

64 Charles W. Smith, "A Quantitative Classification System for Strike Errors," *CNL*, pp. 1646-54; 1665-68.

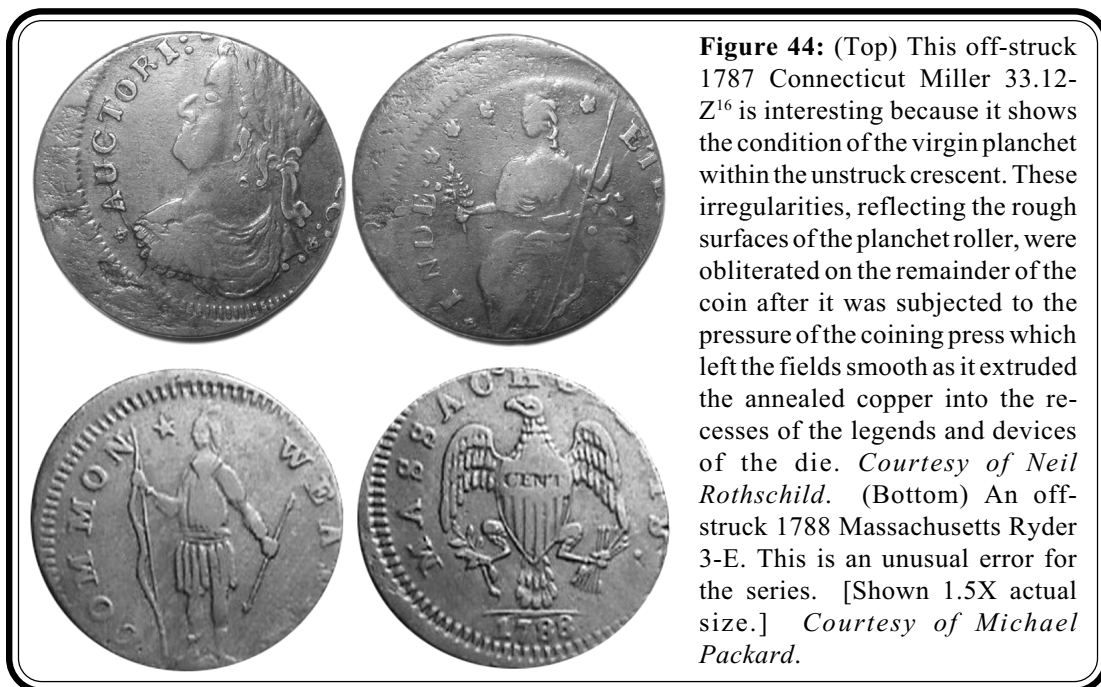


Figure 44: (Top) This off-struck 1787 Connecticut Miller 33.12-Z¹⁶ is interesting because it shows the condition of the virgin planchet within the unstruck crescent. These irregularities, reflecting the rough surfaces of the planchet roller, were obliterated on the remainder of the coin after it was subjected to the pressure of the coining press which left the fields smooth as it extruded the annealed copper into the recesses of the legends and devices of the die. *Courtesy of Neil Rothschild.* (Bottom) An off-struck 1788 Massachusetts Ryder 3-E. This is an unusual error for the series. [Shown 1.5X actual size.] *Courtesy of Michael Packard.*

7. Double-struck (shift double strike) and other multiple struck coins

In this instance, the coin received a normal first strike and then was incompletely removed, or ejected, from its place on the lower die. The coin, shifted from its original position, receiving a second strike which obliterated a portion of the initial impression. This can happen in reverse order where the off-strike preceded the full strike in which case, much of the off-strike was obliterated. As unlikely as it may seem, there are instances where a coin was struck for a third time as witnessed in Figure 48. Whenever multiple strikes appear very geometric as if planned, one must be suspicious as to whether such an error was concocted to amuse the workers on a slow day at the mint. (See Figure 1.) Another consideration is that we do not have any true estimate as to the

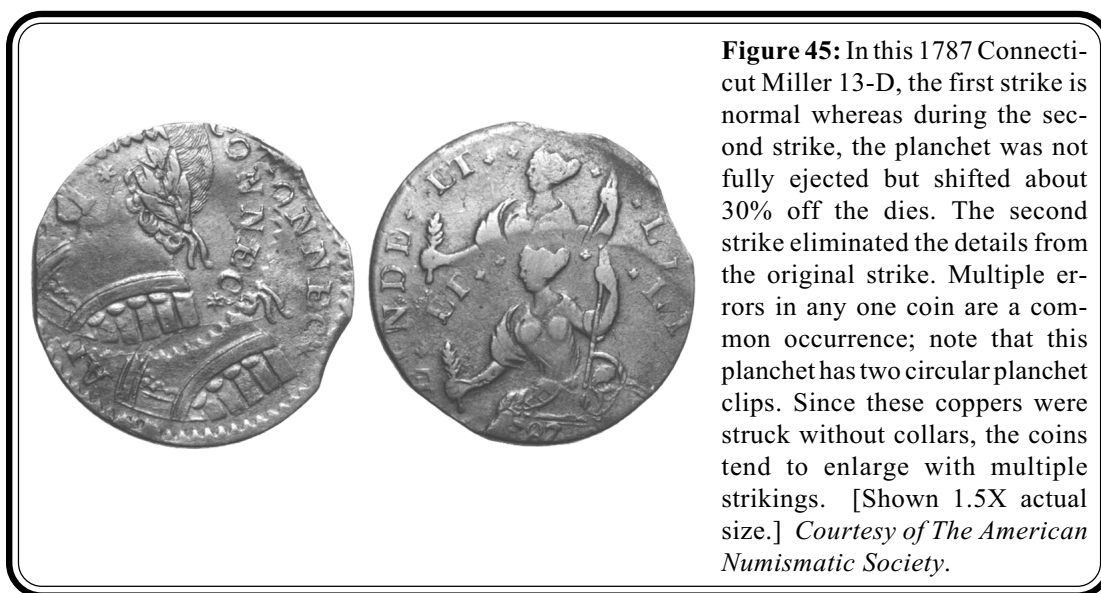


Figure 45: In this 1787 Connecticut Miller 13-D, the first strike is normal whereas during the second strike, the planchet was not fully ejected but shifted about 30% off the dies. The second strike eliminated the details from the original strike. Multiple errors in any one coin are a common occurrence; note that this planchet has two circular planchet clips. Since these coppers were struck without collars, the coins tend to enlarge with multiple strikings. [Shown 1.5X actual size.] *Courtesy of The American Numismatic Society.*



Figure 46: In this reverse order shift double strike, 1787 Connecticut Miller 32.2-X.1, the first strike was about 30% off centered. The coin was then properly centered between the dies and struck for a second time. This second strike obliterated much of the detail from the first impression except along the rim. [Shown 1.5X actual size.] *Courtesy of The Colonial Newsletter Foundation.*



Figure 47: This is another error involving a 1787 Connecticut Miller 1.1-A where, after the first strike, the planchet rotated to the left about 20° for a second impression, significantly enlarging the planchet. [Shown 1.5X actual size.] *Courtesy of Tony Carlotto.*

frequency of misstruck coins since many errors may have been culled as defective coins and the copper reprocessed along with the scissel from the cut remains of the planchet stock. It was probable that more culling took place at authorized mints than at illegal mints.

8. Rotational double strike

In this instance, the coin, after receiving its initial impression, is neither ejected nor moved longitudinally across the lower die, but rather it rotated on its axis and received a second strike so many degrees out of phase from the first.

9. Flipped-over multiple struck coins

After being struck in the usual manner for the first time, the planchet flipped over between the dies so that the fully struck obverse side sustained an impression from the reverse die, and, conversely, the reverse side was struck by the obverse die. The extent

of the second striking depended on how much of the flipped over coin rested squarely between the die pair as it received the second strike. As shown in Figure 48, the coin was struck for a third time. Because all these coins were struck without collars, any double struck coin will be larger and elongated particularly along the axis of the second impression. This same "flip over" maneuver could befall any sort of coin, such as an already off-struck coin or a brockage.

10. Multiple Offset (Off-center) Strikes (MOS)

Whereas most striking errors – the shift double strikes and off-strikes – are quite straight forward, others are more enigmatic and it becomes a frustrating task to diagnose the actual sequence of activity responsible for these more complex off-centered and multiple struck coins with their seemingly random amalgamations of jumbled lines, legends, and figures. In many instances photographs do not do the coins justice which may need to be individually examined first hand. These errors, common within the Fugio and Connecticut series, have been reviewed at length by James Spilman who has classified them as to type in an attempt to codify a potentially complicated



Figure 48: This specimen, a complicated flip triple strike, is a 1787 Connecticut Miller 37.11-ff² thought to be the result of a malfunctioning planchet feeder.⁶⁵ Here the initial strike was about 25% offset, at which point the planchet flipped over between the dies where the second impression was 50% offset. The planchet moved very slightly to receive a third strike, also about 50% offset. [Shown 1.5X actual size.] *Courtesy of The Colonial Newsletter Foundation.*

subject.⁶⁶ He labeled this class of errors Multiple Offset Strikes (MOS). To qualify as an MOS, Spilman proposed that the strikes should be offset from each other by at least 10% of total diameter.

a. MOS type A (one struck coin involved)

In its first group, MOS type A, only one coin is involved in the process such as a conventional double or triple strike, or even the more unusual flipped-over double or triple strike. See Figures 45 to 48.

b. MOS type B (one struck coin and blank flan involved)

Realizing that blanks were being fed into the press while struck coins were being ejected, in an almost single operation, it is not surprising to see that two flans may have become tangled up between the dies and struck together simultaneously, albeit imperfectly. This is the situation which creates MOS types B and C.

The next category, MOS type B, involves a struck coin and a new blank planchet. The sequence is as follows: coin #1 had been satisfactorily struck, but was only partially ejected from between the dies. Immediately a new planchet, coin #2, was fed into press and the two planchets are now lying, one on top of the other between the dies, but not exactly coinciding. The hammer die of the press lowered again and, as the dies approximated, the pair of planchets were struck together. The previously struck coin #1 received a second but shifted impression from its die [i.e. shift double struck]. The opposite side of the coin #1, facing coin #2 [the new planchet] was simultaneously pressed by the off-centered blank planchet. Since coin #2 has no design on it, all that happened was that coin #2 flattened out an area on coin #1 that coincided with the area of double strike on the other side of coin #1. Now coin #2, which participated in the second phase of this complex

⁶⁵ James C. Spilman, "Odd and Curious," *CNL*, p. 517.

⁶⁶ Spilman, "Odd and Curious," *CNL*, pp. 460-70, 515-18; "Comments on the Fugio Cents of 1787," *CNL*, pp. 320-27.



Figure 49: This is a flipped double strike where the first strike was normal and well centered. Then the struck coin flipped over and lay off-set by about 50% between the dies. Then a blank planchet was fed into the press and the dies approximated causing the blank planchet to partially obliterate the reverse image.⁶⁷ [Shown 1.5X actual size.]
Courtesy of The Colonial Newsletter Foundation.

process is labeled MOS type BB. For its part in the process, it had a partial brockage impressed from the design on coin #1 where the two approximated, while the other side had a normal impression that may have been weak in areas.

c. MOS type C (two struck coins are involved)



Figure 50: A Multiple Off-set Strike C is demonstrated by this 1787 Connecticut Miller 30-hh¹ where, on the first strike, the blank planchet, correctly seated on the lower reverse die, received a 50% offset strike from a fully struck coin adhered to the upper die causing a partial reverse brockage. Next, the coin which caused the brockage to be struck was removed and the coin receives a normal strike. This is a reverse order brockage. This strike is classified as a MOS C because a fully struck coin participated in the offstriking.⁶⁸ [Shown 1.5X actual size.] *Courtesy of The Colonial Newsletter Foundation.*

For MOS type C, two newly struck coins participated in the process. Now repeating the previous scenario, the second coin in the process was fully struck, rather than a blank planchet, and so the corresponding side of coin #1 had a partial brockage impressed from the struck coin's designs, rather than a flattened area. This is MOS type C. The other partner in the MOS type C production, is labeled MOS type CC. Here the coin has one normal side, whereas the side that was impacted against its fellow, shows an offset brockage impressed from that coin. What can confuse things more is if the fully struck coin should happen to have flipped over in the process thereby

⁶⁷ CNL, p. 469.

⁶⁸ CNL, p.467.

compounding the complexity. The reader is referred to Spilman's original articles for a complete review of MOS errors illustrated with many descriptive photographs.⁶⁹

E. Summary

This paper has described a variety of mint errors commonly present in the coppers of the Confederation era. Since none of the actual minting equipment from that period has survived, a study of these error coins provides an important vehicle through which one can extrapolate and speculate as to the actual minting techniques of the period. This process adds a new slant to the old adage, "learning from our mistakes." This presentation followed the format of first examining errors that originated from the dies from which the coins were struck. The next stage was to examine planchet production in the late 1780s in America that was still in its developmental mode. During this phase of coining, many errors were created on both metallurgical and mechanical bases. Lastly, within the actual striking process there was the opportunity for many mishaps. This is not surprising since it is our current theory that many mints were experimenting with early editions of automatic planchet feeders that frequently malfunctioned. Of the errors described, some involve the entire output from a single die while others are an individual mishap within the coin press affecting only a single or a pair of coins. As the census of mistakes applies to Connecticut coppers, planchet clips were far more common from the unauthorized mints inferring less concern with quality production. At the other extreme is the well-ordered Massachusetts state mint from which errors are exceedingly rare. While some collectors are drawn to pristine examples of perfectly struck coins, I would hasten to add that these errors and oddities, just described, are just a few of the captivating features of early American coinages which attract so many enthusiastic numismatists to the delights of these pre-Federal series. Not only are these error coins interesting in and of themselves, but by understanding the complexities of how errors occurred, one gains insight into early minting techniques. **CNL**

69 *CNL*, pp. 460-70, 515-18.

Acknowledgments

Many contributed to the preparation of this paper by submitting images to illustrate the various examples of errors and/or reviewing the manuscript. To each and all of them, I am most appreciative of their participation in this group effort.

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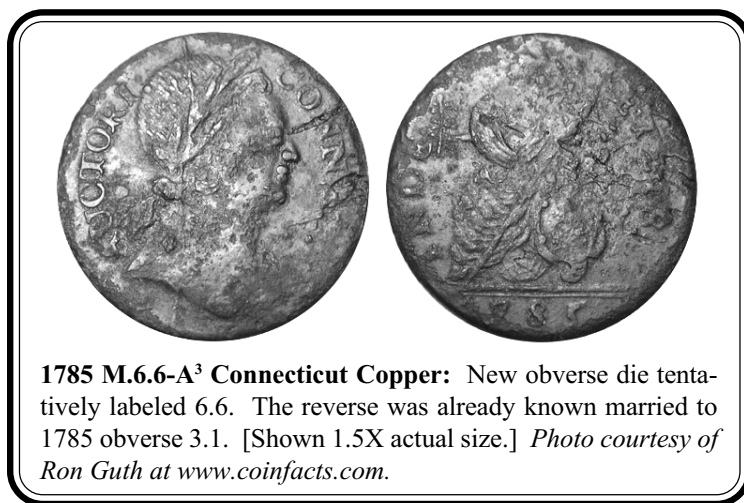
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Dan Freidus
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Louis Jordan
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Byron Weston
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Ray Williams

And all the others I have forgotten.

New 1785 Connecticut Copper Variety Discovered

by
Robert M. Martin; Bronx, NY

(TN-191)



I am pleased to report the discovery of a new die variety of 1785 Connecticut copper.

The discovery coin has a new 1785 Connecticut obverse die paired with the known 1785 Connecticut reverse die A³. The 1785 reverse die A³ is known to be combined with the 1785 obverse die 3.1 (1785 M. 3.1-A³). The most distinguishing features on this new 1785 obverse die are as follows:

- 1) Vertical die break bisects obverse, rim to rim, from 11:30 to 6:30.
- 2) Nose on laureate head points to center of 2nd "N" in "CONNEC."

Following Miller's classification of 1785 mailed bust right types (based on the position of the lower dot of the colon in relationship to the head), this new 1785 obverse die most closely follows Miller's description for obverse type 6. All 1785 obverse type 6 varieties, including this newly discovered 1785 obverse die, have the lower dot of the colon on the head.

Although all 1785 obverse 6 varieties have the "I" in "AUCTORI" partly on head, this newly discovered obverse die has the "I" in "AUCTORI" only barely touching the head. This 1785 obverse die may require further designation, if a revision of Miller's taxonomy is written. I have tentatively assigned this new obverse die as 6.6 and combined with reverse A³, the new variety is 1785 M. 6.6-A³. This specimen weighs 122.3 grains, the die axis is normal coin turn (180 degrees) and the diameter is 28.1 x 28.5 mm along the horizontal and vertical axes, respectively.

This is only the second new die variety of a 1785 Connecticut copper reported since *The State Coinage of Connecticut* by Henry C. Miller published in 1920. The other new 1785 die variety (1785 M. 7.3-D) was reported in 1973. No description of the new obverse die 7.3 has been published.

**Central Device Punch Trial Piece
of the 1781-dated Series of Counterfeit Halfpence**

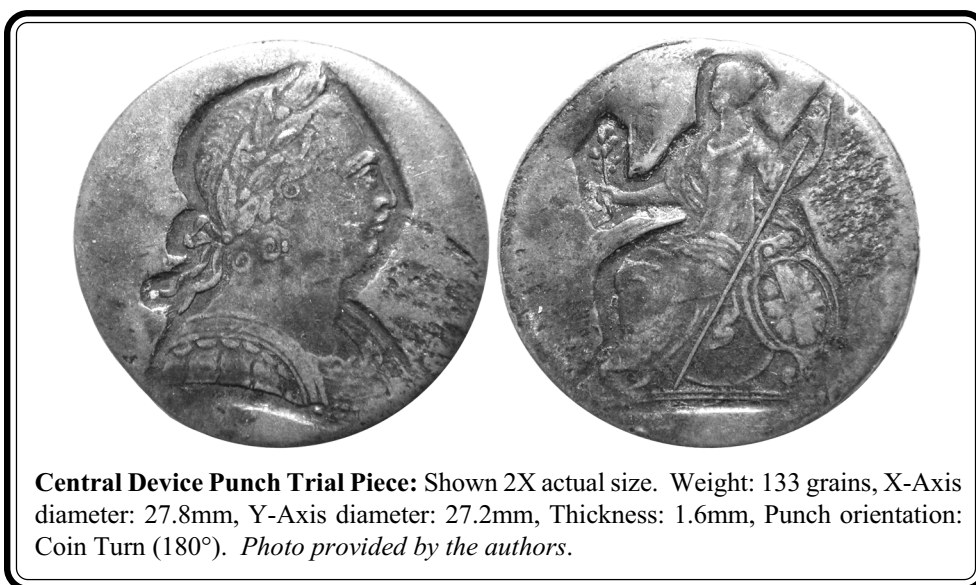
by

Byron K. Weston; Milesburg, PA

Gary A. Trudgen; Vestal, NY

(TN-192)

We have had the pleasure to examine what is believed to be a central device punch trial piece. The obverse and reverse central devices of the trial piece are the same as those of the 1781-dated series of counterfeit halfpence.¹ Submitted for examination by Bill Snyder of Cookeville, TN, this interesting copper was purchased from Spink & Son Ltd., London, England, in December 1996 where it is described on the invoice as a "George III Trial Halfpenny." Further inquiries could only trace the origins of this piece as having been purchased by Spink & Son Ltd. sometime in 1991 and did not reveal from whom it had been purchased.



When examining the trial piece it can be noted that there is a border around the device designs of George III and Britannia. Although this does not show well in a two-dimensional image, this 1-2 mm wide border appears as a gutter around the central devices, indicating the shapes of the punches used to impress either side of the flan. The central device designs are in relief and lie level with or slightly below the remaining fields of the flan, much like the Bela Lyon Pratt design on the \$2.50 and \$5 gold pieces of 1908-1929, often referred to as "incuse relief." Thus, the trial piece central devices were made by impressing punches with intaglio designs into the flan. There are no other design elements present and the remaining fields of the flan are blank.

1. Eric Newman first catalogued the known 1781 halfpence die varieties in his paper titled "Were Counterfeit British Style Halfpence Dated 1785 made Specifically for American Use?" published in the *American Numismatic Society Museum Notes* 33 (1988), pp. 205-23. In this paper he identified five obverse dies that combine with five reverse dies in unique marriages. These die marriages, all employing the same central device designs, are labeled: 40-81A, 41-81B, 42-81C, 43-81D, and 44-81E. Since the publication of his paper one additional obverse die (45) has been discovered and it is married to reverse 81C.

Additional observations concerning the trial piece are:

- There is a raised rim burr on the left reverse side of the flan accompanied by a tapered or beveled edge in this region. There is disagreement between those who examined the trial piece whether the flan was cut or punched from a sheet of copper.
- Double center dots are found on the obverse central device. A single center dot appears on the reverse central device. It is puzzling why there are two dots on the obverse device punch. Perhaps the first dot wasn't accurately placed and the engraver added the additional dot at the correct location.



1781 Counterfeit British Halfpenny: A well preserved example of N.40-81A. [Shown 1.5X actual size.] *Photo courtesy Neil Rothschild.*



Overlay Comparison: A well preserved example of N.42-81C with the central device trial piece overlaid at 50% opacity. The overlay central devices match perfectly with the central devices of the coin. The legends of the coin can be seen through the overlay. [Shown 1.5X actual size.] *Overlay photo provided by the authors.*

The intaglio punches that were used to make the trial piece appear to have been also used in the preparation of working central device punches that were employed to prepare dies for the 1781-dated counterfeit halfpence series. This observation is based upon style and overlay comparisons with halfpence from this series.

The overlay comparison image was posted online in the Colonial Newsletter Foundation Iterative Research eGroup message board. Several series of discussions about the piece ensued over the next several months and the piece itself was sent to various members of the group for personal examination. Finally, the piece was sent to Dr. Peter Gaspar, a noted expert in eighteenth century coinage tools, for his examination. He offered the following observations with input from Eric Newman who also studied the specimen.

While I can't assign its function with certainty, I do have some ideas about it. You and your colleagues made the key observations already:

1. Both the obverse bust of George III and the reverse Britannia device are recessed below the surface of the planchet on which they are struck.
2. There is an incuse outline around both the obverse bust and reverse Britannia.

The tools that were used to strike this piece could have been purposely made in the form in which they were used, in which case their purpose would most likely have been to produce bust and Britannia punches. To do so they would have been struck individually into a soft steel or iron block or the end of a cylinder, the metal surrounding the bust and Britannia cut away, and the soft tool hardened. Jim Spilman knows that Graham Dyer, the late Robert Stevenson and I have identified master tools of the kind I have just described that were made and used in the Edinburgh mint in the 1670s. They were called ‘counterpunches’ and were in effect punches used to make punches, serving the same role as matrices or master dies.

On the other hand the tools that struck your piece could have been dies that were cut down by filing away the areas around the bust and Britannia that carry the inscription on complete dies. Why would anyone have done that? If new dies were needed and no central obverse or reverse device punches, nor master tools for making new punches were available, then this would have been a way to press a die into service as a master tool for reproducing punches. Your piece itself could have been used to demonstrate the quality of the punches that could be produced in this manner, and thus have been used to help sell punches to would-be producers of dies for evasion or other coins.

Another possibility, suggested by the observation that the fabric and weight of the planchet on which this piece was struck closely resemble that of an evasion halfpenny, the piece could have been an advertisement for dies to make counterfeit or evasion halfpennies. An engraver interested in selling dies might have wanted to show off the quality of his work and did so by making a false die, cutting it down and striking this piece to show, without an inscription what the finished “coins” would look like. Of course simply making an uninscribed die and striking trial pieces would have produced a product more similar to a finished “coin” in that the bust and Britannia would have been in relief rather than being incuse images. But if the producer of this piece wanted to sell dies, rather than punches, a piece of this form has the advantage to a seller of dies suspicious of his customers that a cast from this piece could not easily be converted into a die because the area outside the outline surrounding the devices would be too low.

Let me add that the fabric of the piece looks like 18th century work, so it is unlikely to be of more recent vintage. Also, the quality of the engraving is quite high, suggesting that the device on the shield carried by Britannia was made deliberately crude.

So in summary, it is difficult to decide whether the tools used to strike your piece were originally made to manufacture punches, or were instead cut-down dies used to make punches or to advertise the workmanship of a supplier of punches or dies to counterfeiter clients. A final possibility is that a ruined die was cut down and employed to strike this piece just for fun. I find most interesting the possibility that the tools used to strike this piece were indeed used to produce punches.²

We don’t believe “that a ruined die was cut down and employed to strike this piece...” because of the center dots that are present on the central device punch trial piece. None of the well preserved 1781 specimens that we have seen show center dots which means the engraver removed them from the die before the coins were struck. It is interesting that the engraver included center dots on the device punches and perhaps this was common practice. This would guarantee uniformity in the placement of legends between the various dies. Center dots were used with a compass to inscribe an arc on the die face to facilitate the placement of the legend. Once the legend had been punched into the die the scribe lines and center dots were normally removed before the die was placed into service.

2. Peter Gaspar, personal communication, 28 Apr. 2003

We do believe that “the tools used to strike your piece were originally made to manufacture punches,...” specifically the central device punches that were used to prepare the dies for the series of 1781 counterfeit British halfpence. In order to create a working central device punch the engraver first engraves a master punch. This punch is done in relief and could be used to make dies. However, since this punch requires considerable time and artistic capability to create, a copy of this punch is made for use in preparing dies and is known as a working device punch. An intermediate tool is required to raise working device punches and this is the master matrix device punch. This tool is a mirror image of the master device punch and is in intaglio instead of relief.

In summary, we believe the central device trial piece was created by impressing the master matrix central device punches from the 1781 counterfeit halfpence series into a copper flan. This may have been done by the engraver to obtain approval of his central device designs before going forward and creating working central device punches and subsequently working dies. By creating a trial piece the engraver could show his central device designs without risking damage or loss of his valuable master device punches.

Further comment from *CNL* patrons is invited.

Acknowledgements

We would like to thank Dr. Peter Gaspar for examining the central punch trial piece, for sharing his thoughts on it, and for reviewing this technical note. In addition, we would like to thank the Colonial Newsletter Foundation Interactive Research eGroup membership for sharing their observations and opinions concerning this most interesting artifact from the long ago days of counterfeit halfpence production. Finally, we would like to add a special thanks to Bill Snyder for sharing this interesting piece with us all.

LETTER to the Editor

We received an interesting and informative letter from patron Thomas Kays in response to the December 2003 issue. The letter follows with responses from Dr. Mossman inserted within.

December 23, 2003

Congratulations to Dr. Philip Mossman and the *CNL* on publishing the excellent *CNL-124 Money of the 14th Colony: Nova Scotia (1711 - 1783)*. I enjoyed it very much! Thanks especially for explaining all the circulating French Colonial coins that are unique to eastern Canada. This article included an impressive number of dug coins from several live sources with first hand knowledge of recently recovered coins and also reviewed the archeological record to show, in a contemporary colonial context, what types of coins actually circulated in old Nova Scotia, "the 14th colony." Here, the author revealed a wonderful and well-contained time capsule of coins, after the fashion of a shipwreck, from the fort at Louisbourg, occupied by the French from 1713 – 1758, and destroyed by the English in 1760. Single decade populations also came from Forts Beauséjour and Gaspereau, circa 1755.

I liked Dr. Mossman's theory of Tory flight from the lower thirteen colonies to explain the presence of Confederation coppers in the St John River Valley settlements. For those who collect 19th century Canadian colonial copper tokens, these 18th century foreign coins Dr. Mossman described, must be included in your collections to complete the set of Canadian colonials. Old foreign coins of England, Ireland, France, Spain, Central/South America, American colonial coins from the New England colonies as well as early US Federal coins circulated in colonial Canada for many decades, until Canadian decimal coins were first available in sufficient numbers, in the latter half of the 19th century, to retire all the old, worn out foreign money from daily commerce.

Phil was kind enough to respond to a few questions that may interest other *CNL* readers. My questions and his answers follow:

By any chance were you able to acquire any old coins found where your ancestors once lived?

No, I wasn't. None of these recovered pieces were from Lunenburg County, Nova Scotia, where my ancestors settled, but I do have a small collection of Nova Scotia provincial coppers from a later period. **PLM**

There is nothing quite like having a keepsake from the same place and time, that one's ancestors might actually have seen and touched.

Agreed. I often think of this and have other coins from other areas where my family once lived which include the Principality of Montbéliard in Eastern France, Canton Bern, and Bermuda. **PLM**

The tables of recoveries [Tables 4 - 7] didn't list whether cut coin pieces were present, although question marks were associated with the dates of some entries. I take this to mean the coins were

in very low grade, or perhaps, cut in pieces, and so, uncertain as to the exact date. [Cut pieces of silver and copper coins circulated heavily as small change in their own right, in the lower American colonies from 1740 through 1800.] Did you observe many cut silver coins of those recovered?

I just posed this question to the several metal detectionists who participated in this study and they reported that they never recovered any cut silver. **PLM**

In my studies of coins recovered over a wide colonial area, one question that arises is whether the source for these coins was from international shipping or merely from the coastal trade. I found that most of the colonial seaports in Virginia have a wealth of local coin, spread about by the coastal packet fleet. Only in a few extreme cases do the truly odd and wonderful, high denomination coins that are often found on shipwrecks appear in any numbers at port cities, perhaps a result of pirate activity. Evidence of early intercolonial or international trade is generally limited in time and place, to surprisingly few ports of entry, where numbers of like coin recoveries in high grade show the point of introduction of foreign specie. Do you see any parallels for New Scotland?

Yes - the French coins were introduced into Nova Scotia by the Acadians through their commerce with Louisbourg. Those I reported were found in French settlements in the Chebucto Isthmus. **PLM**

In the St. John River Valley settlements, perhaps a third of the recovered George III coppers should be quite high in grade, if introduced between, say, 1783 and 1793. Old English coppers were still circulating in large quantities, as late as 1820, in Virginia. Think of what a wide versus narrow bell curve of random losses can tell us about the introduction, duration of circulation, and removal from circulation of coins. If all are high grade they came early and went quickly. If a mix of high and low grade coins are found, they circulated a long while. If all are low grade, they came late and stayed even later than the dates on coins indicate. If English coppers circulated for long in Nova Scotia, about one third of the recovered coins, lost after long use, ought to be in quite a low grade due to wear. Do you know what was the most common grade, by wear, regardless of environmental damage, for each coin population, grouped by each table?

The only grades I know are to be derived from the photos – most looked in good shape when lost. Later in the 1800s, there was a great coin shortage in the Maritimes and all manner of tokens were in use. I believe this is where the evasive and Condors came from. There were very many from this later period found by my friends which I didn't list since they were current beyond my cut off date of 1783. **PLM**

What would you guess to be the date of introduction of the first counterfeit copper to Canada and also when do you begin to see the more serious, hanging offense, metals of gold and silver being counterfeited in the 14th colony?

Counterfeits were there from day one – they came up from Massachusetts. I believe you are right – they were accepted without discrimination because that's all they had. The authorities in Halifax grumbled about them, but didn't seem to be too concerned except for the cheat cut and overpriced pistareens. None of those cut pistareens, which are so well documented, have ever shown up to my knowledge. Maybe they will come out of the woodwork if this article is made known. **PLM**

By the way, Tim Allen's interesting hoard of coins, pictured on the cover of CNL-124, appears to be predominantly Charles III era coinage of Mexico. By date/wear combinations, I'd expect these

coins were under the sod for the most part, since the War of 1812. The oldest coin pictured is the circa 1721, Segovia mint, *pistareen*, with assayer "J" pictured obverse up, at 11:00 o'clock, in relation to the piece of eight. Due to the little amount of wear alone, it could have been lost the 1740s, but we know huge quantities of older date, high-grade Spanish pistareens turned up in the bullion trade, in Birmingham, England, circa 1789. This pistareen might be of this ilk, a circulating contemporary of the Charles III coinage. The many "Good" condition, Charles III, Spanish Colonial "picayunes" [half *reales*, originally worth 6 ¼ cents] pictured, may have been in circulation, side-by-side, for a decade with US Seated Liberty half dimes, imported to Canada in large quantities during the American Civil War. All Spanish colonial coins in Canada would have disappeared from circulation, in the uttermost provinces, when replaced by proper Canadian decimal coinage, such as the "fish scales" (Canadian half dimes) that became available in quantity during the 1880s. Many old Spanish Colonial silver coins, remaining in Canada, post-1867, were eventually melted by jewelers to make Victorian era "coin silver" tableware. Thus these are all uncommon finds of significance, due to their special provenance as dug colonial Canadian coins.

Thanks again Dr. Mossman for CNL-124. I plan to use it often as a reference and hope you obtain good follow up responses from other *CNL* readers on what they have found to come from Canada.

Tom Kays
Alexandria, Virginia